

**BRUNTON<sup>®</sup>**  
**SOLO<sup>™</sup>**  
**Portable Power Pack**

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## I. Reference Figures

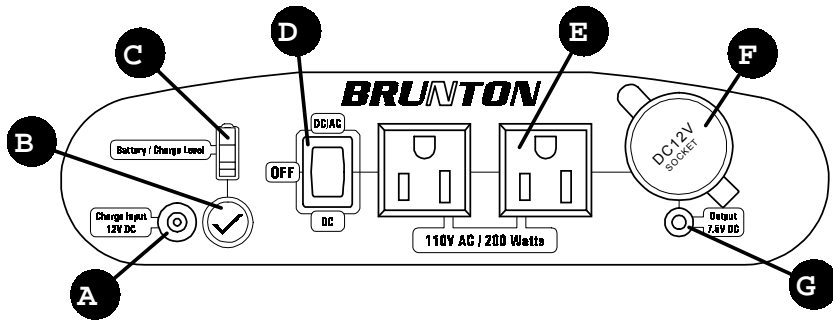


Figure 1

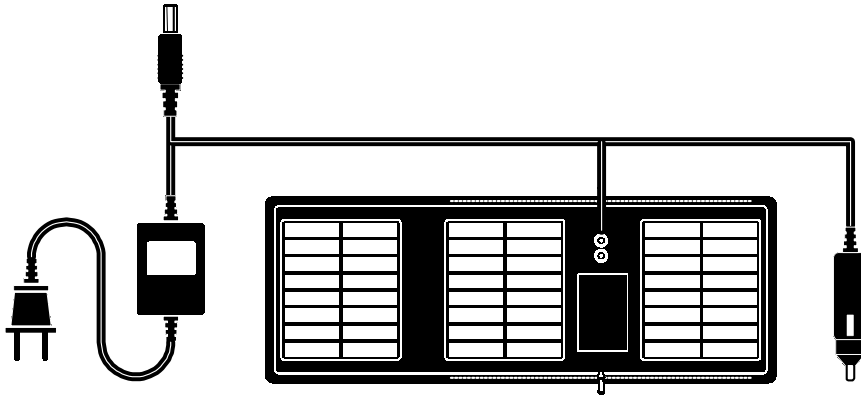


Figure 2

PLEASE LABEL SOLARIS, 110V TRANSFORMER, AND 12 VOLT VEHICLE ADAPTER

## II. Introduction

The Brunton® Solo™ is the premier portable power source. Simply charge the Solo and easily carry it out into the field, to the campsite, or the sporting event. The Solo is weather proof and provides 110 Volts of Alternating Current (AC) and 7.5 or 12 Volts of Direct Current (DC) to run all sorts of necessities. For longer use applications the Solo II has twice the power storage capacity. International 220 Volt Models of both the Solo and Solo II are available.

## III. Safety Issues

**Warning!** Shock hazard, Explosion Hazard

Failure to follow the following safety instructions may result in personal injury and/or damage to the Solo power pack.

- Keep away from children
- Do not expose the unit to water.
- Do not attempt to open the power pack. There are no user serviceable parts inside.
- Any changes or modifications made by the user to this product will void the product warranty.
- Any changes or modifications made by the user will also void the user's authority to operate the Solo under FCC rules.
- Operate the Solo away from flammable materials.
- Operate in a well-ventilated area away from combustible gases or fumes.
- Exposure to extreme temperatures may cause overheating of the unit and trigger thermal shutdown.
- Do not operate the Solo if it has suffered severe external damage. Electrical components inside may have been damaged, creating a potential shock hazard.

## USER INSTRUCTIONS

### IV. General Use

#### Use and short-term storage

- The Solo is built to be weather and dust resistant (IP54) when the lid is closed.
- It is recommended that the Solo be stored in a dry place. The included molded carry case is perfect for storage.
- When the lid is open and the Solo is in use it is less weather resistant and should be sheltered from moisture and dust.

#### Long Term Storage

- It is recommended to store the Solo with the Wall Transformer connected to the charge input jack and a standard household 110 volt AC outlet. This will allow the Solo to maintain its charge over extended periods.
- Failure to charge the Solo fully at least once during a three month period can allow the batteries to reach a depleted state which may shorten the life of the product.

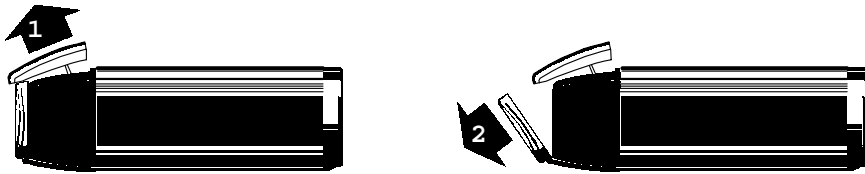


Figure 3

#### Latch

- To open the lid latch, slide hand under the latch and lift. (Figure 3)
- To close the lid latch, close the lid and drop the front of the latch over the lid. Next lever the latch until it closes tightly. (Figure 2)

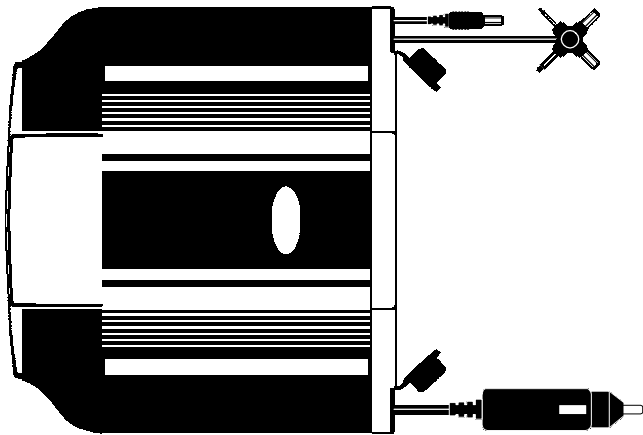
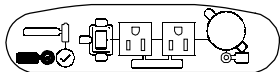


Figure 4

#### Cable Storage

- The Solo is designed to store cables in the handles for easy field use. (Figure 4)
- The 110 Volt transformer stores in the molded carry case.



#### V. Charging

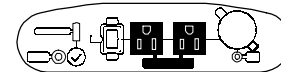
- It is recommended to fully charge the Solo before use.
- The Solo can be used as a power source during charge cycle.
- The three-position switch may be in any position during the charge cycle. (Fig. 1)  $\gamma$
- Using the Solo during the charge cycle will lengthen charge times and may cause the charge cycle to terminate prematurely.
- Charging may be performed with the Brunton Solaris Solar Array, the included wall transformer, or vehicle DC power lighter attachment. (Figure 2)
- All charge sources connect to the same 2.1mm x 5.5mm Charge Input Barrel Jack in the lower left corner of the power pack's front panel. (Figure 1)  $\delta$
- The LEDs will behave as a fuel gauge during the charge cycle. Full Green indicates a full charge. (Figure 1)  $\phi$
- The LEDs are only an approximation of current charge status. It is recommended to wait for all Green LED lights to be lit before using the power pack.

- To increase battery life, it is recommended to allow 30 minutes of idle time after charging before use of the Solo.
- To immediately restart the charge cycle, unplug the charge apparatus and then reconnect it.

#### To charge the Solo:

- The Solo can be used as a power source while charging.
- Place the Solo in a safe area. See previous Warnings.
- Connect the chosen charge apparatus to the Charge Input Jack in the lower left corner of the power pack's front panel. (Figure 1)  $\delta$ 
  - Wall Transformer:* Connect to a standard household 110-volt AC outlet.
  - Solaris Solar Array:* Expose to direct sunlight. (It is suggested to use your Solaris Panels to shade the Solo)
  - Vehicle DC Cable:* Connect to a standard vehicle 12-volt DC power outlet.
- The Red LED will illuminate on the front panel of the Solo to indicate charging has begun. (Figure 8)
- Charging status can be determined by observing the four LEDs. The LEDs will behave as a fuel gauge during the charge cycle. When all four LEDs are illuminated the charge cycle is complete.
- Leaving the Solo connected to the charge source after charge is complete does NOT harm the Solo.
- To stop charging: First halt the charging as illustrated below then disconnect the charge apparatus from the Charge Input Jack on the Solo.
  - Wall Transformer:* Disconnect from the household outlet.
  - Solaris Solar Array:* Cover or remove from direct sunlight.
  - Vehicle DC Cable:* Disconnect from the automobile DC power outlet.
- The LEDs will remain on until the charge source is removed or the status key is pressed. See table below for approximate charging times.

Typical Charge Times	
Wall Transformer	6 hours
Solar Panel	10 hours
Vehicle DC Outlet	2.7 hours

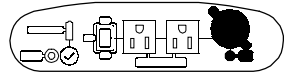


#### VI. Using as AC Power Source

- It is recommended to fully charge the Solo before use.
- The AC power source can be used during charge cycle.
- The power pack's AC inverter converts 12 volts DC power to 110 Volts AC power.
- Voltage supply and LED indicator times will vary with the appliance that Solo is powering.
- A Red LED indicates approximately 1 hour of power remaining.
- A flashing Red LED indicates the Solo will shut down in approximately 15 minutes.
- After 15 minutes, when the battery has been disconnected from the output jacks, the Red LED will stop flashing, and no LEDs will be illuminated.
- To increase battery life, it is recommended to allow 30 minutes of idle time before recharging the batteries after depletion.
- Turn the three-position switch to the "off" or "DC" position when not using the AC power source to conserve battery life. (Figure 1)  $\gamma$

### To use as AC power source:

1. Place the Solo in a safe area. See previous warnings under Safety Issues on page 2.
2. Turn the three-position switch near the center of the power pack's front panel to the "AC/DC" position; (Figure 1)  $\gamma$  LEDs should cycle to indicate that power is flowing.
3. Connect the chosen supply cord to the 110-volt AC socket.
4. Turn the power switch of the chosen AC device to the "on" position.
5. When the Solo has approximately one hour of supply voltage remaining, the Red LED will illuminate. When the Solo is near depletion, power will be removed from the AC supply sockets. Use of the DC sockets will still be available until approximately 15 minutes after the Red LED begins to flash.
5. Voltage supply and LED indicator times will vary with the appliance that Solo is powering.
6. Turn the power switch of the chosen AC device to the "off" position.
7. Disconnect the supply cord from the 110-volt AC socket.
8. Turn the three-position switch to the "off" position. (Figure 1)  $\gamma$
9. Charge the power pack. See Charging on page 3.

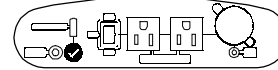


### VII. Using as DC Power Source

- It is recommended to fully charge the Solo before use.
- There are two DC outlets. A 12 volt automotive jack and a 7.5 volt 2.5mm x 5.5mm barrel jack. (Figure 11)
- Voltage supply and LED indicator times will vary with the appliance that Solo is powering.
- The Red LED indicates approximately 1 hour of power remaining.
- A flashing Red LED indicates that the Solo will shut down in approximately 15 minutes.
- After 15 minutes, when the battery has been disconnected from the output jacks, the Red LED will stop flashing, and no LEDs will be illuminated.
- To increase battery life, it is recommended to allow 30 minutes of idle time before recharging the batteries after depletion.
- The DC power source can be used during charge cycle.

### To use as DC power source:

1. Place the Solo in a safe area. See previous warnings on page 2.
2. Turn the three-position switch near the center of the power pack's front panel to the "DC" position; (Figure 1)  $\gamma$  LEDs should cycle to indicate that power is flowing.
3. Connect the chosen supply cord to either the 12-volt automotive jack or the 7.5-volt 2.5mm x 5.5mm barrel jack. (Figure 1)  $\iota$
4. Turn the power switch of the chosen DC device to the "on" position.
5. When the Solo has approximately one hour of supply voltage remaining, the Red LED will illuminate.
6. When the Solo has approximately fifteen minutes of supply voltage remaining, the Red LED will begin to flash, then power will be removed from all supply sockets on the Solo.
7. Voltage supply and LED indicator times will vary with the appliance that Solo is powering.
8. Use of the DC sockets should be discontinued, when the Red LED begins to flash.
9. Turn the power switch of the chosen DC device to the "off" position.
10. Disconnect the supply cord from the DC socket.
11. Turn the three-position switch to the "off" position.
12. Charge the power pack. See charging directions on page 3.



### VIII. Status Key

- Pressing the Status Key (Figure 12) will illuminate the LEDs to indicate the approximate battery level remaining in the Solo.
- Percentages indicated in the table on page 6 are approximate values that will vary depending on the applications being supplied.
- The Status Key does not operate during charge mode.
- If the battery has been disconnected from the output jacks due to low battery voltage, the Red LED will flash when the Status Key is pressed.
- Remember that it is recommended to fully charge the Solo before use.

### To determine the current charge:

1. Place the Solo in a safe area. See previous warnings on page 2.
2. Turn the three-position switch near the center of the power pack's front panel to either the "DC" or "AC/DC" position.
3. Press the Status key.
4. Observe which LEDs are illuminated.
5. Consult the following table for approximate charge remaining.
6. The LEDs will remain illuminated for 5 seconds.

LEDs Illuminated	Percentage of Charge Remaining
Red only	25%
Red and One Green	50%
Red and Two Greens	75%
Red and Three Greens	100%

## SPECIFICATIONS

### IX. Battery Supply

Battery Supply	
Internal Battery Type	Nickel Metal Hydride (NIMH)
Internal nominal battery Voltage	12 Volts
Internal battery capacity	8 Amp Hours
Cycle life at 100% discharge/recharge	500 cycles

### X. Charge Input Jack (Figure 1) $\delta$

- The inlet will accept any 2.1mm x 5.5mm barrel jack.
- It is recommended to use the Brunton Solaris 25, the included wall transformer, or vehicle DC power lighter attachment.
- Charge input is rated for 11V DC to 16V DC.
- The three-position switch may be in any position for a charge to take place.
- See Charging, Page 3 Section IV.

Wall Transformer	
Input Voltage	110 Volt AC
Output Voltage	15 Volt
Output Current	1.8 Amps
Power	27 Watts

Inside Diameter	2.1 mm
Outside Diameter	5.5 mm

### XI. Status Key (Figure 1) ε

- Pressing the status key will show an approximation of the current battery level (see Status Key use, Page 5 Section VII)
- The three position switch must be in the "DC" or "AC/DC" position for the status key to function.
- The status key will not function during charge mode.

### XII. DC/AC Power Switch (Figure 1) γ

- The down position is the "DC" position.
- In the "DC" position, the unit can be charged, the status key is operational, and the DC power outlets are usable.
- The center position is the "off" position.
- In the "off" position, the unit can be charged but there are no other functions available.
- The up position is the "AC/DC" position.
- In the "AC/DC" position, the unit can be charged, the status key is operational, and both the AC and DC power outlets are usable.

### XIII. AC Inverter

- The three-position switch must be in the "AC/DC" position for the AC outlets to be active.
- There are two AC outlets that will accept any standard three-pronged AC power cord.
- The Solo is available in an international format with a European type F outlet. In this configuration the output is 220V AC and 50 Hz. All other specifications and DC output is similar to the US version described in this manual.
- See AC Power Source Page 4.

AC Inverter	
AC nominal output voltage (+/- 10%)	110 Volts AC
Maximum AC output power	200 Watts
AC output frequency	60 Hz
AC output waveform	Modified Sine Wave
Inverter no-load current	400 mA/H
Ambient operating temperature range	32F-104F (0C-40C)
Low battery shut down point	10.2 Volts

### XIV. 12 Volt DC Outlet (Figure 1) ι

- The three position switch must be in either the "DC" or "AC/DC" position for the 12 Volt DC outlet to be active.
- The outlet will accept any standard sized automotive jack plug. (Cigarette lighter)
- See DC Power Source Page 5.

12 Volt DC	
Output Voltage	12 Volts
Output Current	8 Amp

### XV. 7.5 Volt DC Outlet (Figure 1) φ

- The three-position switch must be in either the "DC" or "AC/DC" position for the 7.5 Volt DC outlet to be active.
- The outlet will accept any 2.5mm x 5.5mm barrel jack
- See DC Power Source Page 5.

7.5 Volt DC	
Output Voltage	7.5 Volt
Output Current	1 Amp
Inside Diameter	2.5 mm
Outside Diameter	5.5 mm

### XVI. FCC

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

#### Note:

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy. If not installed and used in accordance with the instructions, it may cause harmful interference to radio communications. However there is no guarantee that interference will not occur in a particular installation.

If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

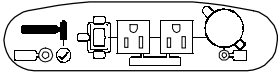
## ERROR CODES/TROUBLESHOOTING

### XVII. Fault Mode

- Fault mode occurs when there is a non-recoverable hardware error in the power pack.
- The Red and one Green LED will flash alternating with the other two Green LEDs indicating a fault mode.
- The LEDs will continue to flash until the three-position switch is placed in the "off" position, or until an authorized technician has serviced the Solo.
- Some fault indicators can be cleared by toggling the three-position switch "off" and then back on. The hardware fault still exists, but the indicator has been temporarily disabled.
- It is recommended to discontinue use of the Solo and seek technical support when a fault condition is encountered.

## XVIII. Thermal Shutdown

- If the power source inside the Solo reaches 140° F (60° C) or greater, the system will enter thermal shutdown.
- During thermal shutdown, the battery will be electronically disconnected from the output jacks.
- During thermal shutdown, the unit cannot be charged.
- During thermal shutdown, all four LEDs will flash on and off collectively in half second intervals.
- Allow the unit to cool before attempting to operate it again.
- The LEDs will quit flashing when the temperature is again at a safe level, or the three-position switch is in the "off" position.
- Operation of the unit in environments with excessive temperatures may not be possible.



## XIX. LED Indicator Quick Reference (Figure 1) φ

- **Flashing Red LED**
  - During any mode this indicates that the battery level is extremely low and that all power to the sockets will be suspended in approximately 15 minutes. Use of the Solo should be discontinued, and a charge cycle should be started.
  - After pressing the status key, this indicates that the battery has been disconnected.
- **Red LED**
  - During normal operation, this indicates the battery is low and needs to be charged.
  - While any charge source is connected to the power pack, this indicates that the unit is charging, but the battery level is still low.
  - After pressing the status key, this indicates that the battery level is low and needs to be charged.
- **Red and One Green LED**
  - While any charge source is connected to the power pack, this indicates that the unit is charging, and that the battery level is approximately at 50% of capacity.
  - After pressing the status key, this indicates that the battery level is approximately at 50% of capacity.
- **Red and Two Green LEDs**
  - While any charge apparatus is connected to the power pack, this indicates that the unit is charging, and that the battery level is approximately at 75% of capacity.
  - After pressing the status key, this indicates that the battery level is approximately at 75% of capacity.
- **Red and all Green LEDs**
  - While any charge source is connected to the power pack, this indicates that the unit has completed its charge cycle and is ready for use.
  - After pressing the status key, this indicates that the battery level is near full capacity and is ready for use.
- **Cycling LEDs**
  - This indicates that the power to the unit has been successfully engaged.
- **All LEDs Flashing**

- During any mode this indicates that the Solo has reached an overheated condition and will not operate until it has cooled down.
- **Alternating Flash: Red and One Green , then Two Green LEDs**
  - This indicates there is a hardware fault in the Solo that is not recoverable. Service is required.

## XX. Troubleshooting

### Problem: No power to connected device.

1. Check to see if the three-position switch is in the "AC/DC" or "DC" position depending on which outlets are being used.
2. Check to make sure there is a proper connection between the power cord and the outlet.
3. Check to make sure the power cord is of the proper type to utilize the outlet it is connected to. See outlet specifications on page 7.
4. Check to see if the connected device is switched on.
5. Look for LEDs flashing that may indicate a thermal shutdown. See Thermal Shutdown on page 8.
6. Check LEDs flashing that may indicate a fault mode has been reached. See fault modes on page 8.
7. Press the status key. If the Red LED is flashing, the battery has been disconnected and cannot be used again until the Solo is charged.
8. Check to make sure device does not exceed the power rating of the power pack.

### Problem: Run time is shorter than expected

1. Device being operated may exceed the power pack's power rating.
2. The battery may not be fully charged. See charging on page 3.

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### **BRUNTON, Limited Warranty**

Brunton warrants this product to be free of defects in materials and workmanship, for a period of one year. This warranty extends to the original purchaser for one year from the date of purchase.

This Warranty is void and a charge for repair will be made if the Solo has been damaged by negligence, accident or mishandling, or has not been operated in accordance with standard operating procedures, or if the Solo was altered or repaired by other than a Brunton repair facility.

This warranty gives you specific legal rights, and you also have rights, which vary from state to state. No other warranty, expressed or implied, applies to the Brunton product, nor is any person or company authorized to assume any other warranty for Brunton. Brunton does not assume any responsibility for any consequential damages occasioned by this product. Should the product prove defective, contact Brunton, and you will be provided with a Return Authorization Number (RA#). Send a copy of your proof of purchase, the RA#, a short description of the problem and the product to Brunton at the following address. Brunton suggests insuring the product in case of damage or loss in shipment.

Brunton  
Warranty Repair (307) 856-6559  
620 East Monroe Avenue support@brunton.com  
Riverton, WY 82501-4997 www.brunton.com

Detach and Return within 30 days of purchase

### **BRUNTON Solo Warranty Registration**

Name: \_\_\_\_\_  
Address: \_\_\_\_\_  
City: \_\_\_\_\_ State: \_\_\_\_\_ Zip: \_\_\_\_\_  
Phone: \_\_\_\_\_  
Date Purchased: \_\_\_\_\_  
Amount Paid: \_\_\_\_\_

Would you like to receive a Brunton Catalog? ( )Yes ( )No

Please let us know where you purchased your Solo

Store Name: \_\_\_\_\_  
City: \_\_\_\_\_ State: \_\_\_\_\_ Zip: \_\_\_\_\_  
( ) On-Line site \_\_\_\_\_ ( ) Catalog \_\_\_\_\_  
( ) Gift ( ) Brunton ( ) Other \_\_\_\_\_

Do you own another Brunton Product?

( ) Yes. Product: \_\_\_\_\_ ( ) No.

I decided to buy this product because of ...

( ) Features ( ) Gift ( ) Recommendation  
( ) Magazine ( ) Catalog ( ) Store Display  
( ) Salesperson ( ) Newspaper

This Solo will be used for ...

( ) Camping ( ) Occupation ( ) Sporting Events  
( ) Vacation ( ) Travel ( ) Education  
( ) Other: \_\_\_\_\_

**CROSS SALE PAGE**

**BACK COVER**