Plug-Out Island 3-4kw 240v Setup-Use Instructions

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WARNINGS:

This high power and high voltage electrical product can be harmful to persons and vehicle if misused.

The user assumes all liability for the Plug-Out device, personal injury, and the host car.
HV cables are generally identified by their Orange covering.
Please note that anyone accessing the Prius HV battery and to install these cables does so at their own choice and risk. You are dealing with 200+ volts of DC. Anything over 50 volts is considered dangerous [can cause death], and DC voltage is more dangerous than AC.
Installing this Plug-Out system can void the car manufacturer's warranty on any issue where the system or cable can be shown to have caused any car problem.

This Plug-Out Island product is for OFF-GRID use only.

Do not connect to Grid as it may cause damage to the device and/or utility workmen.
Do not connect to the house wiring, unless this is planned and installed by a trained and certified electrician. Custom wiring to a house would be similar to a standard generator, where single phase 120v AC is suited.

Assumptions:

Plug-Out Island products are intended for use on Prius, or,

Other Hybrid vehicles must consult ConVerdant for Vehicle compatibility.
Use on other hybrids/cars not approved by ConVerdant, is at the sole responsibility of the user.

Package Contents:

A. Power input Cables: 3-4kw
   Battery cable: [2.5ft, 12awg, ring lugs, 30a fuse holder, 15a FNM-15 fuse, Anderson connector], or [2.5ft 10awg, ring lugs, 30a fuse holder, FNM-30 fuse, Anderson connector].
   Inverter cable [2.5ft, 12awg, ring lugs, Anderson connector] or [25ft, 10awg, ring lugs, Anderson connector]
B. Inverter 3-4kw [240-120v/60hz]

Not included, but also needed for use are Extension or Generator Cables appropriately amp rated from the Plug-Out device to the site appliances or generator socket. Power meters are also recommended.

1. **Connect the Prius to the Plug-Out Inverter**:
   * BE SURE YOUR HANDS ARE DRY, and/or that you are wearing dry gloves. The battery cable on the Prius is live with 200+Vdc, even when the car is off. Be careful to avoid any exposed metal or wire on the cable or plugs.
   * Car is OFF, Plug-Out is OFF [Plug-In system is OFF, too]. Note: CAR MUST BE OFF.
   * Find the car's HV battery cable in the trunk subfloor and pull the Anderson connector above the trunk deck.
   * Place the Plug-Out box in the car truck or leave it on the garage floor/shelf if you have a longer [optional] input cable. Be sure the Inverter cable half is connected properly to the Plug-Out inverter, with red/white wire to positive DC input terminal, and black wire to negative.
   - Plug together the two Anderson connectors from the HV battery and Plug-Out cables. There may be a spark when connecting, but this is OK.
2. **Connect the Plug-Out inverter to the house/appliances**:
   * You can connect via a hierarchy of extension cords and power strips from the two 120v 3-prong plugs on the Plug-Out to the house appliances.
   * Or, via a custom cable from the 4-prong NEMA L14-30R socket or 4 labeled power studs to the generator socket on the garage wall. Or, via a custom hardwired connection to the transfer switch, when the Plug-Out is already in the basement. Consult a certified electrician for advise on house connection and selection of appliances to power.
   Note: Split-Phase 240v Inverters are rated for 240v appliances, using each 120v phase/circuit evenly. But, it can have only half the rated power on each 120v phase circuit. So a 3kw-240v Plug-Out can only support up to 1.5kw per 120v circuit. So, a 2kw 240v appliance plus a 1kw 120v appliance will exceed the capabilities of the one phase where the 120v appliance is connected.
3. **Turn On the Prius and Plug-Out Inverter**:
   * Be sure the car space/tailpipe is well ventilated to the outside air.
   - Turn the Hybrid ON and leave in PARK. Turn off any car accessories; like AC, fans, radio, lights, etc.
   - To see Plug-Out Voltages display: Press the Enter key one time < 1sec. See the Input VDC voltage above and Output VAC voltage below. Expect the DC Voltage to be above 200v and the AC Voltage to be 0v [Plug-Out is OFF]. The Bypass LED should be ON.
   - Turn the Plug-Out Island ON by pressing the ON/OFF switch for 3 seconds on the Inverter's front face. To verify the Inverter is ON, the AC Output voltage should change to about 240vac, the Bypass LED should go OFF, and the Inverter LED should go ON.
     If the Output AC Voltage remains at 0 volts, then the Plug-Out is still OFF. Try the ON/OFF key again for 3 seconds to see if the Output voltage and LEDs change. The Abnormal LED ON means the input voltage is below 195vdc. Call ConVerdant if problems occur.

The 3-4kw 240v products are rated for 12.5-18amps [240/120v] continuous use and up to 18-30amps for 6 seconds [surge current]. However, continuous use at the continuous rating is risky, given the random use of attached appliances and their surge loads. So it is recommended that the user limit maximum continuous power use to about ¾ the continuous rating, or less if high surge current appliances are used.

If the Plug-Out shuts off automatically, it could be due to input voltage being too low, inside temperature being too high or low, output power overload, or some condition like a short or open circuit or very unbalanced phases. Turn the inverter OFF, fix the condition and wait for a time to let the condition clear, then restart the inverter. If the problem persists, call ConVerdant for assistance.

System Tear-Down: When emergency power is no longer needed:

1. Turn OFF the inverter first [before the car]
2. Before turning OFF the Prius, check the Prius battery charge level on the Prius Dashboard Energy Screen, note how many bars of charge are showing [1-3 bars is low but normal]. Now turn OFF the car.
3. Replug the appliances to the house outlets. Remove the extension cables.
4. Remove the inverter at the Anderson connectors and stow with components for future use.
5. If the Prius battery [Energy Screen] shows only 1 to 3 bars of charge [purple-yellow], restart the Prius and drive around town for 5 minutes to recharge the Prius battery up to 5 bars [blue].

Typical Appliance power levels:

Small load appliances: Low power appliances like lights, refrigerators, freezers, CRT/LCD/OLED TVs, computers, network routers, battery chargers, etc.

Medium load connections with planning: Non-electric house heating system and water heater [oil, nat-gas, wood boiler], but this must not use electricity to make heat directly. Consult certified electricians on how/if to connect to the house heat system.

Power hungry 120v appliances for Manual control: Power tools, clothes washers, coffee makers, hair dryers, microwaves, electric space/baseboard heaters, sump pumps, etc. Again, consult certified electricians on how/if to connect these appliances.

Power hungry 240v appliances only if electrician approves: Electric stove/oven, electric clothes dryer, electric water heater, well pump, central air handler/fan, central air conditioner, electric air/ground source heat pumps. Again, consult certified electricians on how/if to connect these appliances.

DO NOT CONNECT Plug-Out to the Utility Grid, however inadvertently.