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Installation Guide





WARNING: ClearEnergy® P2 and Docking Station should be installed by a professional electrician familiar with electrical wiring and codes, and experienced in working with solar and battery systems. ClearEnergy accepts no responsibility for accidents, damages or personal injury caused by incorrect installation. The ClearEnergy P2 and Docking Station is intended for wall mounting **INDOORS** only. Our systems are UL listed to UL 9540 and meet the criteria of National Electrical code Article XXXXXXXXXXXX systems. **CAUTION:** If using the ClearEnergy P2 and Docking Station for larger appliances, such as electric water heaters, clothes dryers, electric ranges and small air conditioners, check the labels on the appliances to be sure they do NOT exceed the rating of the ClearEnergy P2. No appliance should have an amperage rating that exceeds the individual breaker rating in the system (15 amps).



Thank you for purchasing a ClearPOWER P2. The ClearPOWER P2 ensures that your home's essentials are powered during the event of a power outage and you also have portable power wherever you are and for all your on-the-go-needs.

- ClearPOWER P2 is an all-in-one plug-n-play energy charging, storage and powering solution. It can power refrigerators, lights, TV's, internet modems, microwaves, fans and more if your home loses power from the grid or if you need power on the go.
- ClearPOWER Docking station integrates the P2 into your homes breaker panel and circuits to automatically charge via grid or solar and power up to 3 essential load circuits (15 amps each).

Items Included in the Box:

- ClearPOWER P2
- ClearPOWER DockingStation
- (1) – 1-meter wiring harness
- Installation Instructions
- Owner/User Guide
- Registration steps
(To Be Completed By Installer)

Optional Items

- Mounting Bracket
- Additional Docking Station
- Additional Installation Cable
- 1.5 kWh Expansion Battery Packs
- Extended Warranty

PRODUCT SPECIFICATIONS



General

Dimensions: 10.3 D x 15.5 W x 10.8 H in (26.16 D x 39.37 W x 27.43 W cm)

Weight: 55lbs (24.94 kg)

Chainable: Coming Late 2018

Warranty: 12 Months Electronics / 5 Years Batteries

Battery

Battery Chemistry: Li-ion NMC

Capacity: 1534Wh (25.2V, 60.9ah)

Lifecycles: 2000 cycles to 90% depth of discharge

Maintenance: Minimum - Charge every 10-12 months.

Charging

Input A/C: 126W max. (12.6v, 10A)

Input Solar: MPPT charge controller 24V, 22.5amp (540W max)

Output

(4) **USB Port (output):** 5V, up to 2.4A (12W max)

(2) **12V DC car port (output):** 12V, up to 10A (120W max)

(1) **12V DC 8mm (output):** 12V, up to 10A (120W max)

(1) **24V DC 8mm (output):** 24V, up to 10A (240W max)

(4) **AC Inverter (output, pure sine wave):** 120VAC 60Hz, (2500W, 5000W surge)

INSTALLATION PROCEDURE

CAUTION Hazardous voltages are present inside ClearPOWER P2, Docking station and Breaker panel enclosures that can cause death or severe personal injury. Follow proper installation, operation and maintenance procedures to avoid hazardous voltages. Turn off the main circuit breaker in the load center before starting installation.

Step 1 Mounting Docking Station

1. Identify installation location of the Docking Station. Most installations are done in utility rooms in proximity to the home's breaker panel.
2. Use Template to mark the lag locations that correspond with the lag holes on the back of the docking station and the hole for the provided power whip (called the ClearPOWER installation cable).
3. Make sure lags will screw into studs or other secure surface.

4. Cut hole where the ClearPOWER installation cable will attach.
5. Attach ClearPOWER installation cable to the Docking Station.
6. Screw lags into studs 80% on previously marked location.
7. Hang Docking Station using "Eyelet holes" that are pre-drilled and located on the back of the Docking Station
8. Tighten lags completely.

Step 2

Mounting 4 Square/Gang Box (Not Provided)

1. Fish other end of ClearPOWER installation cable to 4 Square location.
2. Attach 4 Square Box to ½" knock-out and secure using locking.
3. Mount 4 Square Box.

Step 3

Connecting to Breaker Panel (Use 12 pin connector)

1. Identify 3 critical circuits to be backed-up by the ClearPOWER ClearPOWER P2.
2. De-energize panel breakers.
3. Run wires from the panel protected in conduit, Sealtite, Flex or other appropriate means to the 4 Square Box.
4. Label and Mark wires according to the provided wiring diagram in order to easily match with the labeled wires on the ClearPOWER installation cable.
5. Connect to corresponding wires on the ClearPOWER installation cable located in the 4 Square Box.
6. Connect corresponding wires (hot, neutral and ground) to the breakers following the provided wiring guide and wire numbers.
7. Energize the breaker panel and test.

Step 4a

Connecting Docking Station to dedicated solar panels (Use 5 pin connector)

1. Run PV wire from the solar panels, through appropriate conduit, to the 4 Square Box.
2. Install disconnect to the PV power cables.
3. Ensure disconnect is off.
4. Follow the provided wiring guide connect PV power cables to the ClearPOWER installation cable in the 4 Square Box.
5. Turn disconnect switch on and energize the circuit.
6. Test




Step 4b








Connection Docking Station to the ClearPOWER Solar Relay Box.

*****Optional and purchased separately. Used for connecting to existing solar arrays with micro-inverters and/or optimizers.**

1. Find and identify ideal mounting location for relay box on rooftop rack mounting.
2. Identify up to 3 optimal panels to use for wiring into the ClearPOWER Docking Station to charge ClearPOWER ClearPOWER P2.
3. Using MC4 connectors and Y Branch connector to split the + and – leads from each solar panel before the micro-inverter and/or optimizer.
4. Attach the + and – leads to the relay box.
5. Using approved methods bring #10 AWG wire from the ClearPOWER RelayBox to the installed 4 Square Box dedicated to the ClearPOWER DockingStation.
6. Run outside rated #18 AWG (signal wires) from the ClearPOWER RelayBox to the 4 Square box dedicated to the ClearPOWER DockingStation.
7. Connect solar wires in the RelayBox and junction box.
8. Connect the signal wires in the RelayBox and in the Junction Box.
9. Re-install plates and re-mount solar panels
10. Test

INSTALLATION PREPARATIONS

Tool	Appearance	Description
Multimeter		Used to check cabinet insulation and cable connection, and measure electronic performance specifications of a device, such as voltage, current, and resistance.
Label paper		Used to prepare labels.
Insulated phillips screwdriver (2 mm x 150 mm and 3 mm x 250 mm)		Used to tighten screws and bolts.

Insulated socket wrench		<p>Used to tighten bolts and nuts.</p>
COAX crimping tool		<p>Used to crimp cord end terminals.</p>
Diagonal pliers		<p>Used to cut insulation cables and cable ties.</p>
Wire stripper		<p>Used to remove the insulation layer and jacket from a communication cable with a small cross-sectional area.</p>
PVC insulation tape		<p>Used to insulate wires and conductors.</p>
Cotton cloth		<p>Used to clean panels and shells.</p>
Heat shrink tubing(M6)		<p>Used to insulate wires and conductors.</p>

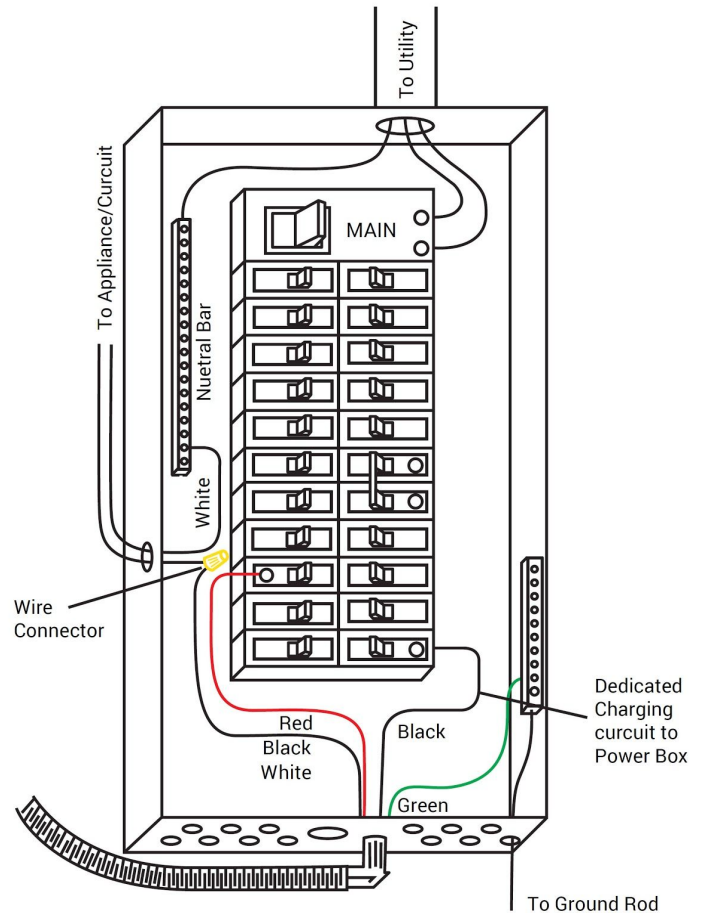
Heat gun		<p>Used to heat a heat shrink tubing.</p>
Electrician's knife		<p>Used to strip cables.</p>
Protective gloves		<p>Used to protect hands and the device on which you operate.</p>
ESD gloves		<p>Used to prevent the electrostatic discharge (ESD) from damaging a board or other electrostatic sensitive devices (ESSDs) when you insert or remove a board or hold an ESSD.</p>
Insulated gloves		<p>Used to insulate hands.</p>
Hydraulic pliers		<p>Used to crimp the OT terminals and JG terminals with a large cross-sectional area of 10 mm², 16 mm², 25 mm², or 35 mm².</p>
Cable tie		<p>Used to bind cables.</p>

5 Pin Connector – Provided power whip comes with labeled wires

1. PV Wire + (Red) #10 AWG
2. PV Wire – (Black) #10 AWG
3. Control Wire (Purple) #18 AWG
4. Control Wire (Orange) #18 AWG
5. Ground (Green) # 6 AWG

12 Pin Connector – Provided power whip comes with labeled wires

1. Power to Docking Station (Black) #14 AWG
2. Neutral to Docking Station (White) #14 AWG
3. Circuit #1 From Breaker (Red) #12 AWG
4. Circuit #2 From Breaker (Red) #12 AWG
5. Circuit #3 From Breaker (Red) #12 AWG
6. Appliance/Circuit #3 (Black) # 12 AWG
7. Neutral #1 to Neutral Bar (White) #14 AWG
8. Appliance/Circuit #2 (Black) #12 AWG
9. Neutral #2 to Neutral Bar (White) #14 AWG
10. Appliance/Circuit #1 (Black) # 12 AWG
11. Neutral #3 to Neutral Bar (White) #14 AWG
12. Empty



DOCKING STATION WIRING DIAGRAM

Breaker Panel

