

SunFusion

Energy Systems

800.544.0282

Echo T Series Owner and Installation Manual



1.800.544.0282
Info@sunfusioness.com
www.sunfusioness.com

9020 Kenamar Dr Suite 204, San Diego CA. 92121

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NOTES: Warnings, system charge and discharge.

This statement surpassed all other statements of charge and discharge. No Voltage rating will be set higher then 57.6V and lowest shutoff voltage is 46V, Safety voltage set by SunFusion BMS is 42V anything more or less voids all warranties, Charge controllers can be set to 55.4V at .2 minutes.

To ensure that you receive the benefits of the full 25-year product warranty, Echo must be registered by completing the commissioning process and sending your specific system information to SunFusion. Battery life is 6000 Cycles at 1C, SunFusion Echo systems are at .5C totaling 18,000 cycles, even if you cycle once per day that 49-Years, Any changes to our specs will void the warranty. **Warning: Read this entire document before installing or using the Echo.** Failure to do so or not following any of the instructions or warnings in this document can result in electrical shock, serious injury, or death. Damage to the Echo may also occur, which can potentially render it inoperable. **Follow all Jurisdictional Codes Fire, NEC, Local codes are a must.**

Product Specifications

This manual applies to the Echo T Series. Don't change any values in the inverter(s) without SunFusion Energy System authorization, if you make changes to system values you will void the warranty. The ECHO system is not to sell to the grid under the 25 year warranty, if you wish to see to the grid we can change your warranty to 5 years.

All specifications and descriptions contained in this manual are verified to be accurate at the time of printing. However, because of the continuous improvements at SunFusion, we reserve the right to make product modifications at any time.

The images provided in this document are for demonstration purposes only. Depending on the product version and market region, details may appear slightly different. Proper disposal of batteries is required. Refer to your local codes for disposal requirements.

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IMPORTANT SAFETY INSTRUCTIONS











Echo installation and service requires knowledge of high voltage electricity and should only be performed by SunFusion certified installers. SunFusion assumes no liability for injury or property damage due to repairs attempted by unqualified individuals or any failure to properly follow these instructions. All these warnings and cautions must be followed when using Echo.









Symbols in This Document

This manual uses the following symbols to highlight important information:

-  **WARNING:** This indicates a hazardous situation which, if not avoided, could result in injury or death.
-  **CAUTION:** This indicates a hazardous situation which, if not avoided, could result in minor injury or damage to the equipment.
- NOTE:** This indicates an important step or tip.

General Information

-  **WARNING:** A battery can present a risk of electrical shock, fire, or explosion from vented gases. Observe proper precautions.
-  **WARNING:** This product can expose you to chemicals including lithium compounds, which are known to cause cancer, birth defects, or other reproductive harm. For more information, visit www.P65Warnings.ca.gov. Please note that you cannot be exposed to these chemicals without opening the external casing. Only members of the SunFusion Service team and other SunFusion-certified technicians should open the external casing.
-  **WARNING:** Echo installation must be carried out only by SunFusion certified installers who have been trained in dealing with high voltage electricity.
-  **WARNING:** Echo is heavy. Use of lift equipment is recommended.
-  **WARNING:** Do not use the Echo if it is defective, appears cracked, broken, or otherwise damaged.
-  **WARNING:** Before beginning the wiring portion of the installation, ensure that the Echo is switched to the disconnect switches (if applicable for the installation).
-  **WARNING:** Do not attempt to open, disassemble, repair, tamper with, or modify the Echo. Echo and its components are not user serviceable. The batteries in the Echo are not replaceable. Contact the SunFusion certified installer who installed the system for any repairs.
-  **WARNING:** To protect the Echo and its components from damage when transporting, handle with care. Do not impact, pull, drag, or step on Echo. Do not subject the Echo to any strong force. To help prevent damage, leave Echo in its shipping packaging until it is ready to be installed.
-  **WARNING:** Do not insert foreign objects into any part of the Echo.
-  **WARNING:** Do not expose the Echo or its components to direct flame.

-  **WARNING:** Do not install Echo near heating equipment.
-  **WARNING:** Do not immerse the Echo or its components in water or other fluids.
-  **CAUTION:** Do not use fluids, parts, or accessories other than those specified in this manual. This includes any use of non-genuine SunFusion parts or accessories, or parts or accessories not purchased directly from SunFusion or a SunFusion-certified party.
-  **CAUTION:** Do not use cleaning solvents to clean the Echo or expose the Echo to flammable or harsh chemicals or vapors.
-  **CAUTION:** Do not place the Echo in a storage condition for more than one (1) month or permit the electrical feed on the Echo to be severed for more than one (1) month, without placing the Echo into a storage condition per SunFusion's storage specifications.
-  **CAUTION:** Do not paint any part of the Echo, including any internal or external components such as the exterior shell or casing.
-  **CAUTION:** Do not connect the Echo directly to photovoltaic (PV) solar wiring.
-  **CAUTION:** When installing the Echo in a garage or nearby vehicles, keep it out of the driving path. If possible, install Echo on a side wall or above the height of vehicle bumpers.

System Information

Safety Features

BMS Provides internal protection against thermal runaway (overheating), overcharging, over-discharging, over-voltage, over-current, and short-circuiting. All Echo T System's require 1-Master 800 and 1-R300 and an internet connection. Aluminum casing provides maximum cell protection and durability. The SunFusion Echo Battery has been tested and meets all current safety regulations and shipping requirements.





Charge Time


The SunFusion Echo Battery can be charged in approximately 4 hours give or take what is being used in the facility when fully discharged.

Life Span

Under normal conditions, the average life span of the SunFusion ECHO Battery is generally around 18,000 charges/discharge cycles which approximately last 49 years. The amount of charge the battery will hold will gradually decrease due to usage and aging. This decrease in charge capacity is true for all rechargeable lithium-iron batteries.

Environmental Conditions

-  **WARNING:** Install Echo in a location that prevents damage from flooding.
-  **WARNING:** Operating or storing Echo in temperatures outside its specified range might cause damage to Echo.
-  **WARNING:** Do not expose the Echo to ambient temperatures above 60°C (190°F) or below -30°C (22°F).
-  **CAUTION:** Ensure that no water sources are above or near the Echo, including downspouts, sprinklers, or faucets. Minimum 6' Clearance from GAS or open water source.

-  **CAUTION:** Ensure that snow does not accumulate around or on Echo.

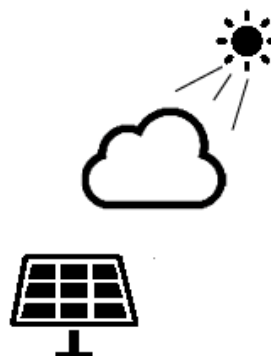
Environmental Requirements

Echo is capable of charging and discharging within the operating temperature range specified below. At the extremes of the temperature range, the Echo may limit charge or discharge power to improve battery lifespan. For best performance, the average ambient temperature over the system's lifetime should fall within the optimum temperature range specified below.

Weather Conditions

On cloudy days, the strength of the UV rays will be significantly less powerful compared to a clear sky day. This is the same concept for days with morning haze, nighttime, snowy days, or any weather condition that does not allow UV rays to properly permeate the solar panels. Rainy days will have the same effect as cloudy days; however, Rainy days will help clean off the panels from dirt and dust build-up. If heavy loads are being used during these times, then the utility grid will compensate for the excess use of electricity. If you do not operate with the grid, then your back-up generator will compensate. If you do not operate with the utility grid or a generator, then your battery will drain, and you will be without power until the battery can charge up again.

In situations where the power is off for several days, it is important to be diligent with electricity. We recommend turning off appliances that are not for essential use. If there are several days of cloudy skies, be aware of where you are running electricity. The duration of the battery will last longer if the correct precautions are taken.






Maintenance

Echo Systems do not require pre-scheduled preventative maintenance. The only maintenance required by the owner is to keep the Echo unit free and clear of debris, especially around the air intake and exhaust.

Care and Cleaning

If it is installed outside, keep the sides of the Echo clear of leaves and other debris to maintain optimal airflow.

-  CAUTION: Do not lean on, stack anything on top of or hang anything from the Echo or wires or conduit leading to the Echo.
-  CAUTION: To clean the Echo, use a soft, lint-free cloth. If needed, the cloth can be dampened with mild soap and water only.
-  CAUTION: Do not use cleaning solvents to clean the Echo.




Monitoring Your System

Using the SunFusion app, you can monitor system operation from your mobile device, including the following:

- Real-time power usage
- Energy consumption history
- Relative amounts of energy used from solar, grid, and Echo storage.

Operation

The monitoring provides monitoring capability through the SunFusion app. During normal operation, the Echo is controlled by the monitoring and the Echo on/off switch should be in the ON position. When troubleshooting Echo operation, it may be necessary to turn off the Echo or refer to its LED indicator to confirm that is operating properly.

-  WARNING: Do not operate the Echo unless all covers are in place.
-  WARNING: Do not disconnect anything from or add anything to the Echo.
-  CAUTION: Do not try to communicate with the Echo using third-party tools or diagnostics between the Echo and the Monitoring.

About Echo

Echo is a fully integrated DC battery system for residential and light commercial use. Its rechargeable lithium-iron battery pack provides energy storage for load shifting, solar self-consumption, or off-grid use. The monitoring controls the operation of the system and allows remote monitoring of energy usage.

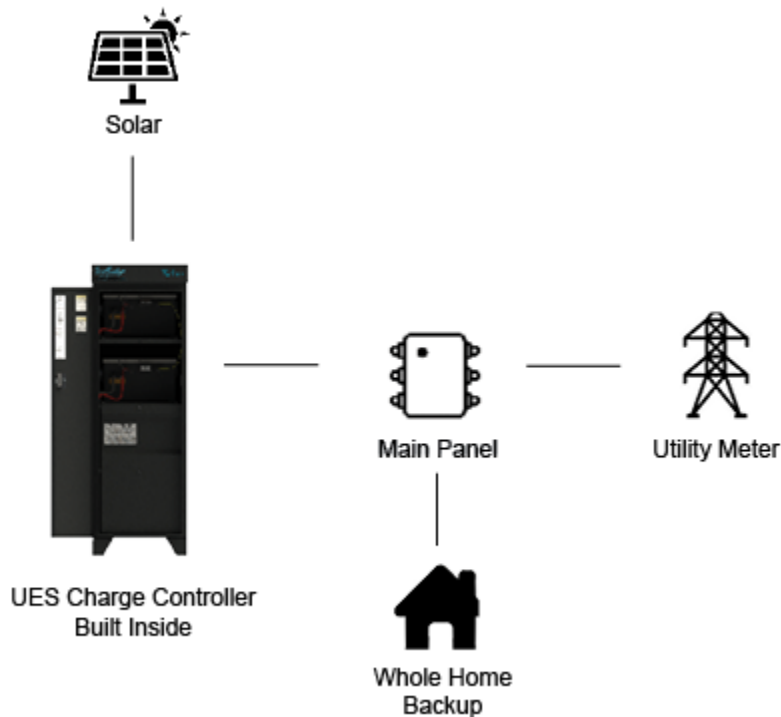
The backup monitoring system on Echo controls the operation of the system. This allows remote monitoring for energy usages and controls interconnection with the electrical grid while automatically managing the transition to and from the backup operation.

An Echo uninterruptible energy system (UES) system can provide whole-home backup or partial-home backup. With a whole-home backup, the backup monitoring is typically installed between the electrical service entry and the main panel.

With a partial-home backup system, the Backup monitoring is installed between the main panel and a subpanel dedicated to essential backup loads.

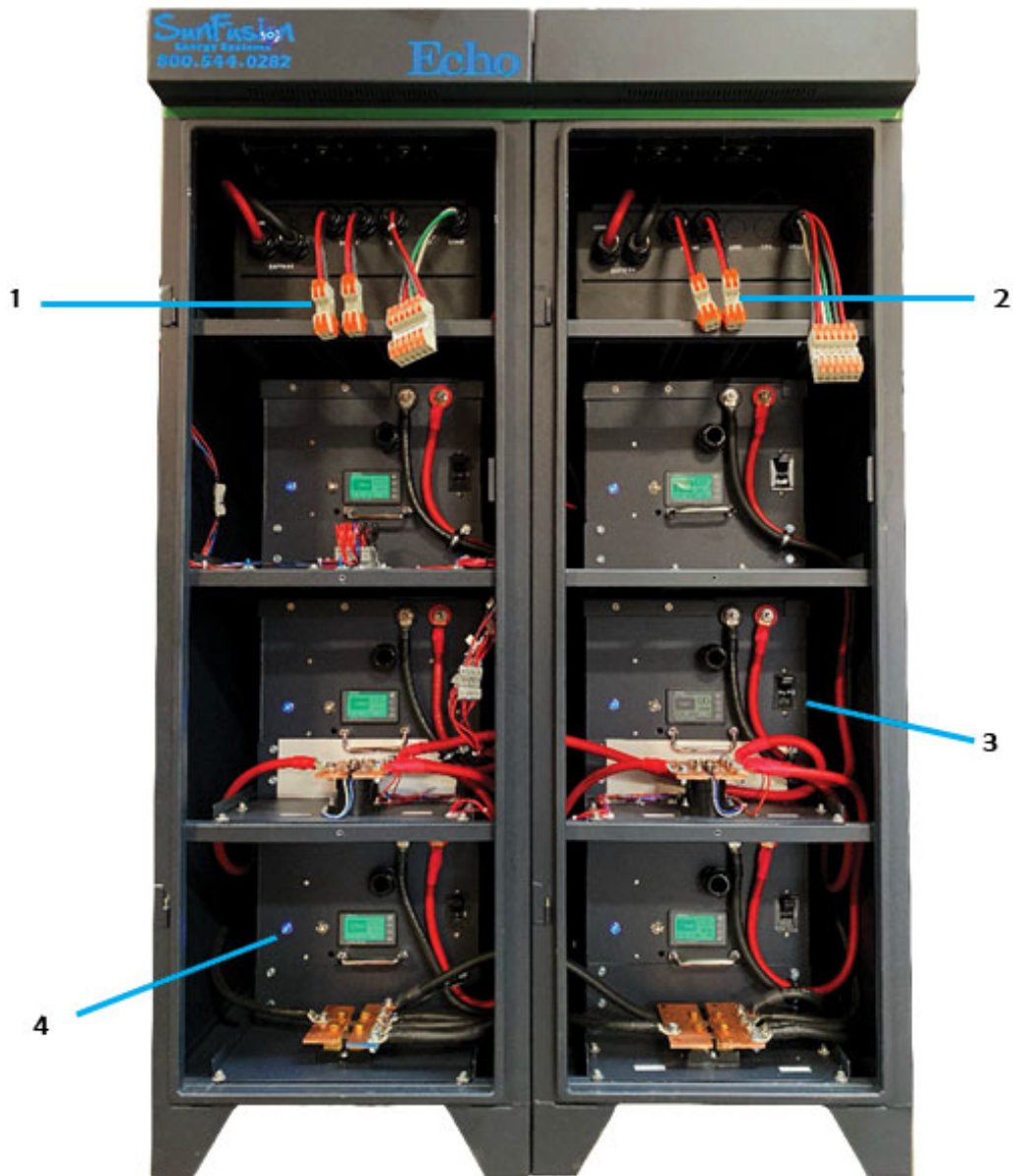
About Echo System with Backup

- In a whole-home or partial back up system, our product provides a backup gateway through our Wi-Fi Stick. Here you can monitor solar self-consumption, time-based control, and backup through **Powerview Es** a phone app.

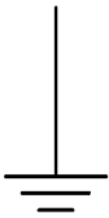


Battery Activation

1. Open door to confirm all wires are installed BEFORE PROCEEDING.

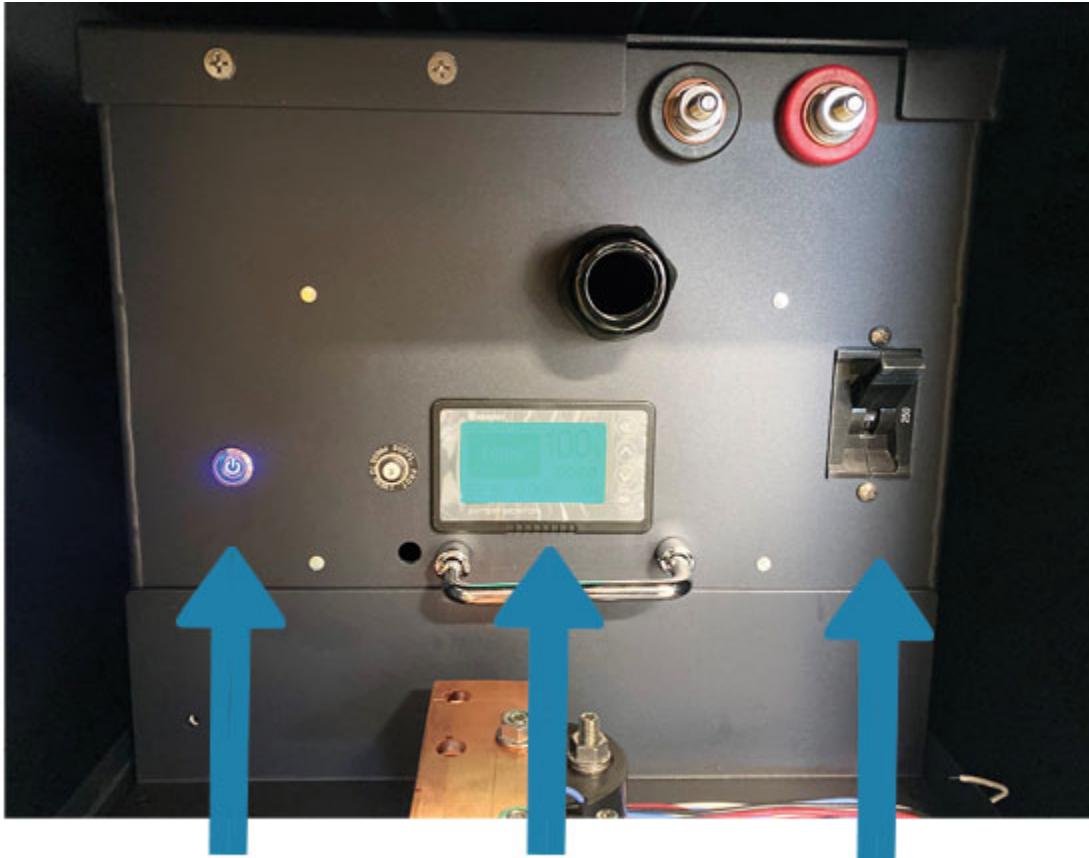


- 1) Solar input #1
- 2) Solar input #2
- 3) Inverter Breaker Switch for Live Busbar
- 4) Battery On/Off Switch



#6 Grounding wire to a 5/8-by 8' ground rod for each ECHO system from cabinet foot area using a GBL4 LUG rated for outdoor use.


1. If your system has been shipped to you, it will not be turned on. Make sure to reference the system diagram, on page (16), to remove the battery dead front and look at numbers 5 and 10 on the diagram.
2. You will need to switch on the breaker and press the power button. Make sure to do this for all batteries in the cabinet.
3. If your system is on, the rapid shut down button will be on, the breaker will be flipped on, and the LED screen will be lit up on each battery.



Power Button

LED Display

Breaker Switch
(Controls Inverter Power)
Up is on
Down is off

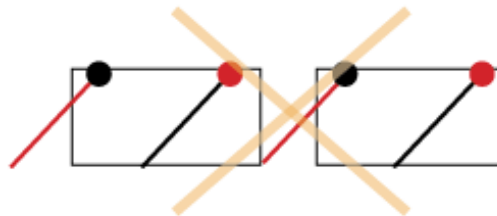
 CAUTION: Busbars become live when the breaker switch is on. Take caution around it, for it will electrocute you.

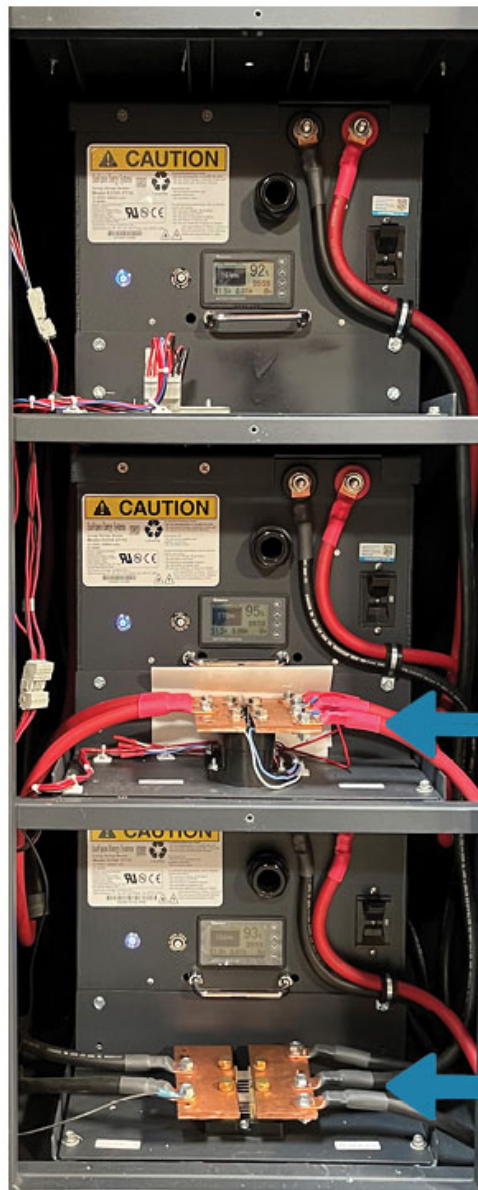
1. Without turning on the breaker switch, make sure to check all LED battery displays for voltage reading. The voltage for each battery must read the same number or be within 5-tenths of a volt. Please refer to the picture.
 - a. For example, this battery reads 52.3v. This means the other batteries must range between (51.9v - 52.8v).
2. During testing, make sure the multimeter voltage results match the led display results.



Damage will occur

Do NOT reverse polarity of batteries





1. Start with Multimeter. Set multimeter to DC voltage (V_{DC}). Once all battery packs are turned on. Test positive to positive. Test negative to negative. These are labeled refer to battery diagram.



Test the positive, red, prong from the multimeter to the positive battery Busbar.

Test the negative, black, prong from the multimeter to the negative battery Busbar.

Battery DC Meter Does Not Match LED

1. If the DC voltage reading, from the multimeter, does not match the battery DC requirement from the LED display, leave the battery pack on for 48 HOURS to let the system set and batteries equalize before house use. Let solar equalize for 24 HOURS before house use.
2. After 48 hours follow the steps to test again. (Steps are under Battery Activation) page (8).

Rapid Start Up or Shut Down

1. At the top of the Cabinet look for the SunFusion logo, located near the far left between the I and N, press this button, and the system will light up meaning it is active.

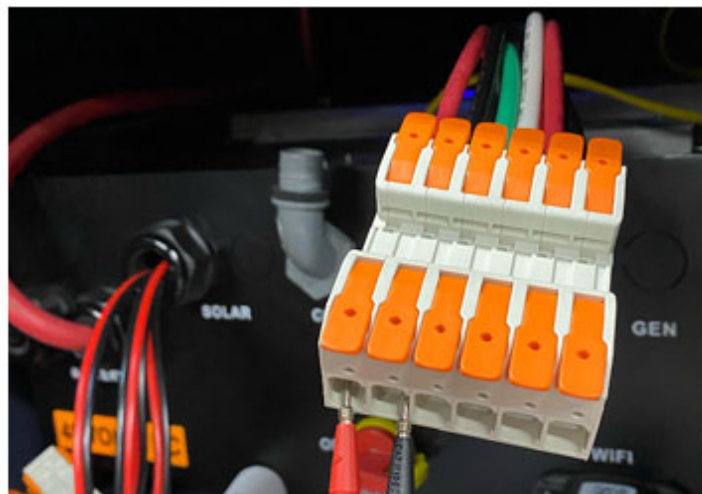


2. After about 30-60 seconds the Wi-Fi dongle will turn red then green. This means the inverter is active and ready for testing.



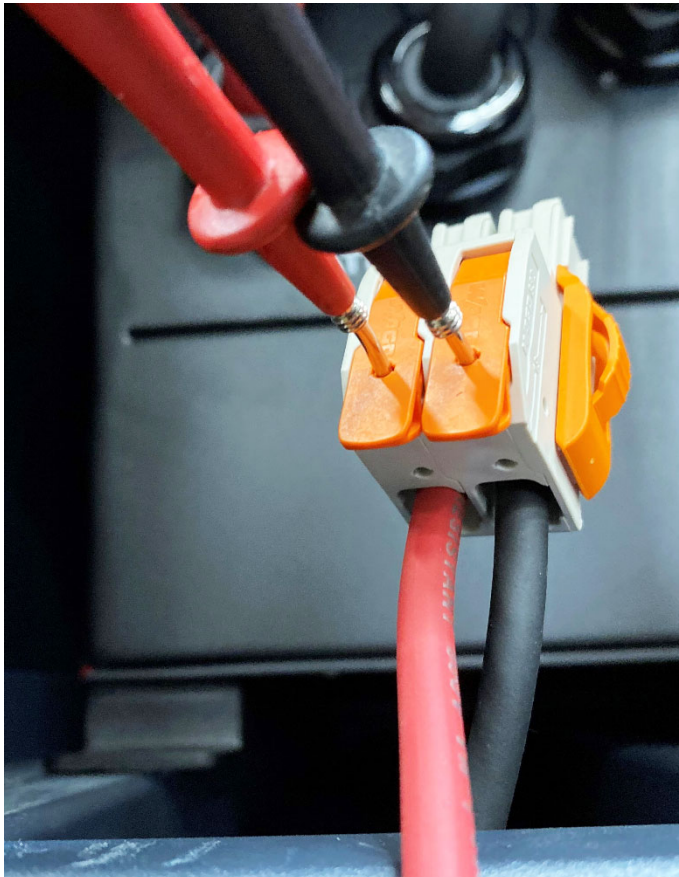
3. Use a multimeter for AC power and set it to V~ refer to the picture. (If the meter beeps it is okay.)

3a. The far most left ports are for inverter power out (120/240 or 120/208.) Match positive to positive (red prong to red insert.) Then match negative to negative (black prong to black insert.)

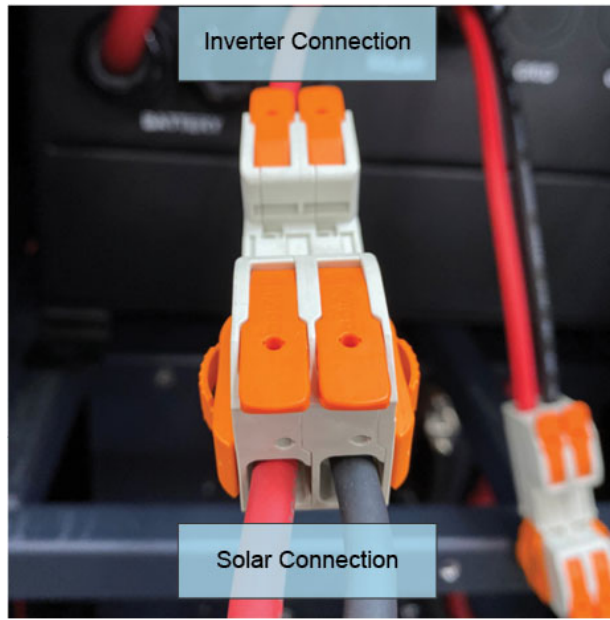


Solar Activation

1. If Solar is integrated into the system, you **MUST** check polarity, voltage, and DC amperage. Reference PV System Spec's diagram on page (18).
2. Make sure to test the solar voltage. Use the multimeter and set it to **V_{DC}**. Test positive to positive. Test Negative to Negative. You want the meter to read under 550V.
 - a. **Sol-Ark 12K has 2 separate pairs of solar panel inputs. (Dual MPPT)**
 - b. **Max PV input: 13,500W(+/- 5%) per system (6,250W per MPPT) PV = 500VOC Max**
 - c. **Max Isc input per MPPT: 33A (self-limiting to 20A @450Voc/300Vmp or 18A @ 500Voc/400Vmp)**
 - d. **Note: Damage will occur if PV VOC > 550V**

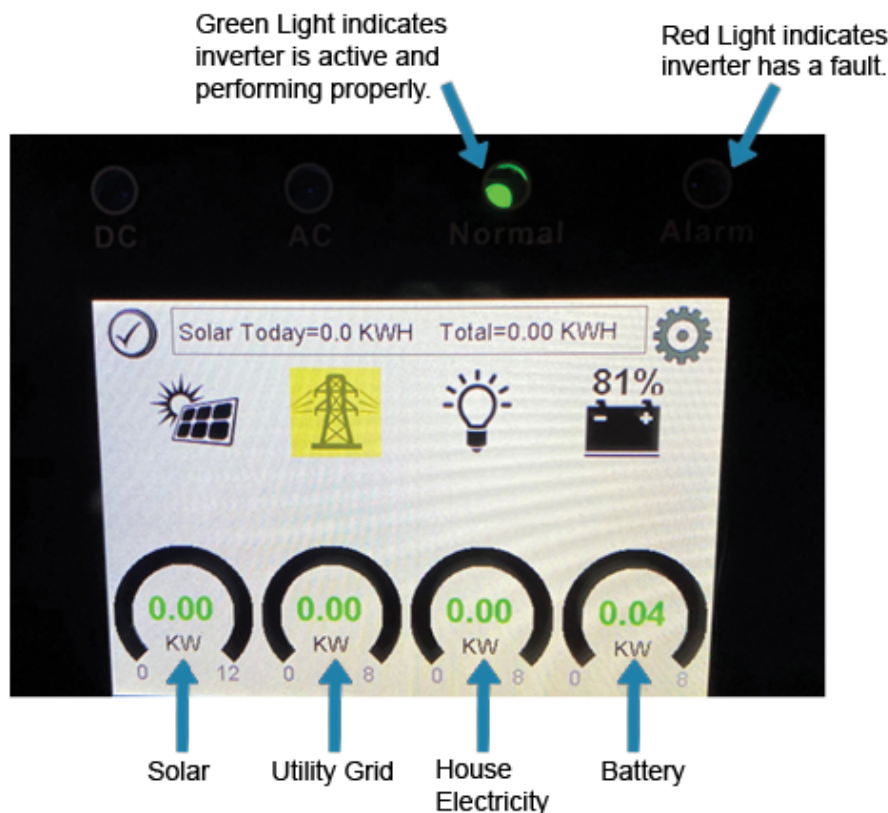


3. Once polarity is checked you are ready to activate your system. Make sure to plug the inverter connect and the solar connect back in.



4. After the meter test. Use a long telescope mirror or use your phone to take a picture of the screen to check reading on the inverter screen. (refer to picture)

⚠ WARNING: If the inverter beeps there is a fault check for the red light on the inverter. Use the long mirror provided or use your phone to take a picture of the screen. Please reference the Sol-Ark Installation and Owner's manual pages (37-39).



Tigo Installation (ONLY FOR NEW SOLAR)

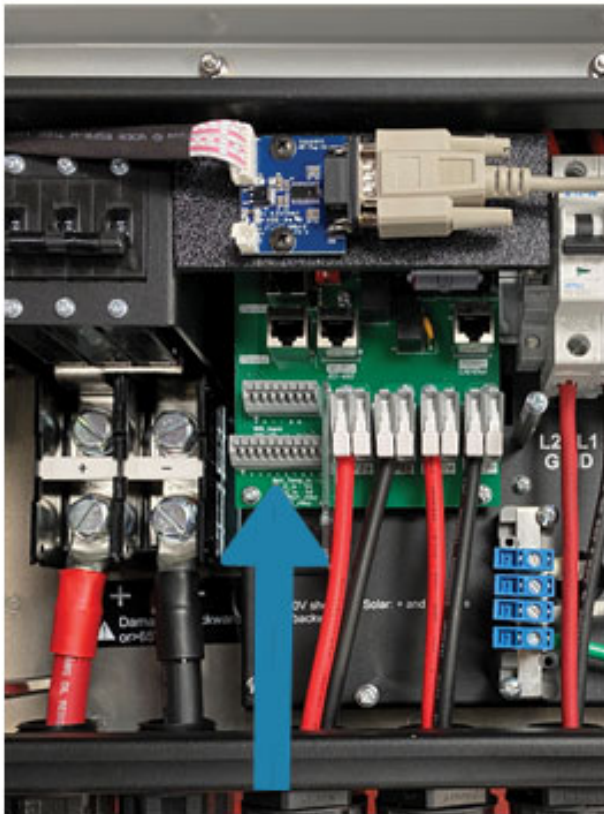
These steps are for new solar installs. Depending on your load size, you will either need a single core or a dual core installed. For more information, please reference the Tigo website.

Single-Core SKU: 490-0000-10

(150A) RSS DIN Rail Transmitter for 12V. (No power supply or enclosure) Take the positive, red, wire, and connect it to the positive port. This is labeled as (15) on the diagram. Take the negative, black, wire, and connect it to the negative port. This is labeled as (16) on the diagram.

Dual-Core SKU: 490-0000-20

(300A) RSS DIN Rail Transmitter. (No power supply or enclosure) The Dual core will be connected to the Tigo RSS Transmitter. This is photographed on page (16).



15) Positive Solar Connect
16) Negative Solar Connect

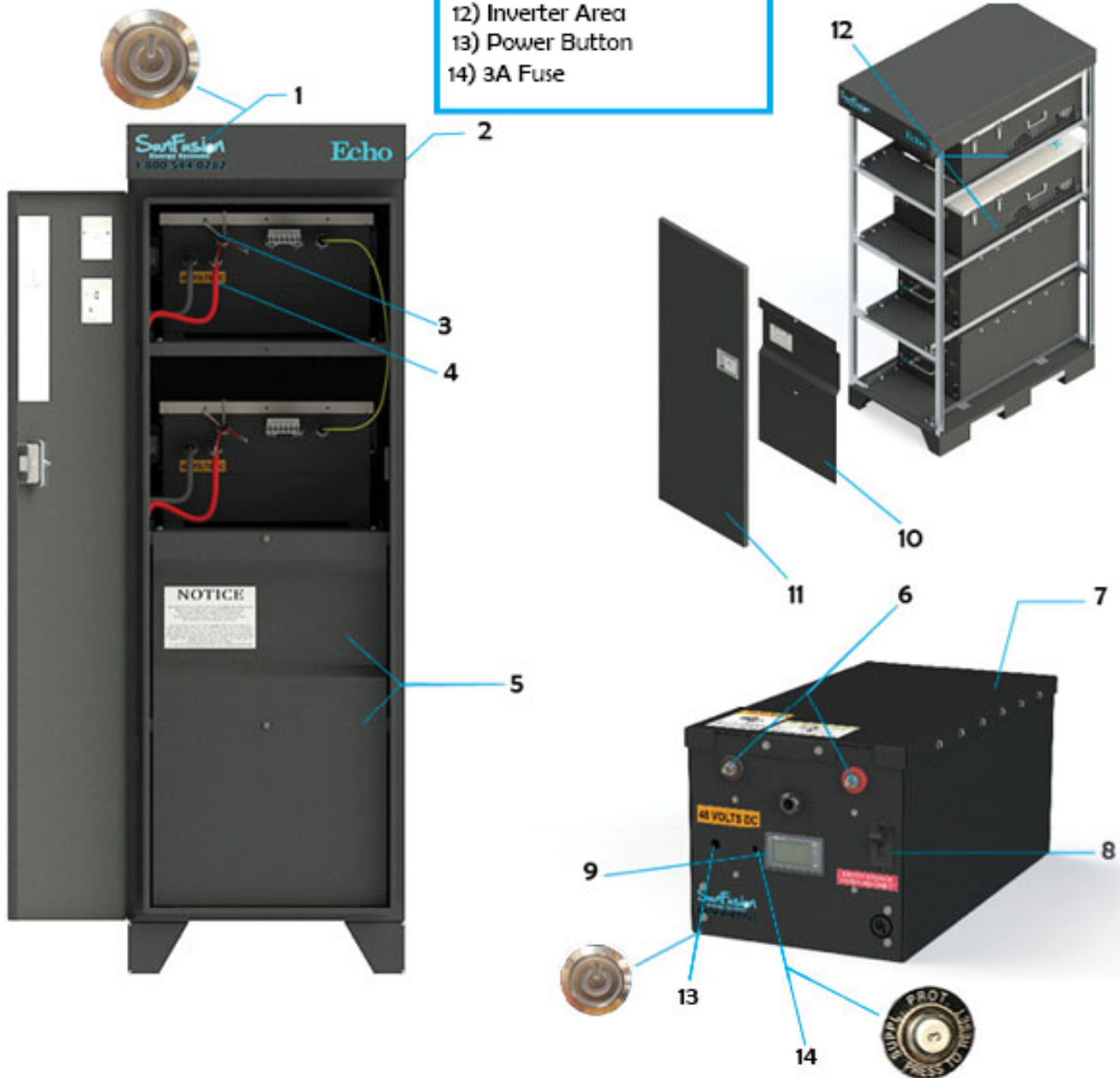
RSS Transmitter Installation – Single & Dual RSS Core

- Pass either positive or negative homerun through the RSS Core
- Connect wires to AC side of power supply.
 - Max number of strings per RSS core: **10**
 - Max string length: **30 Modules**
 - Max current per RSS Core: **100A**
 - Max cable length from inverter (+) to inverter (-): 1000ft (300m)

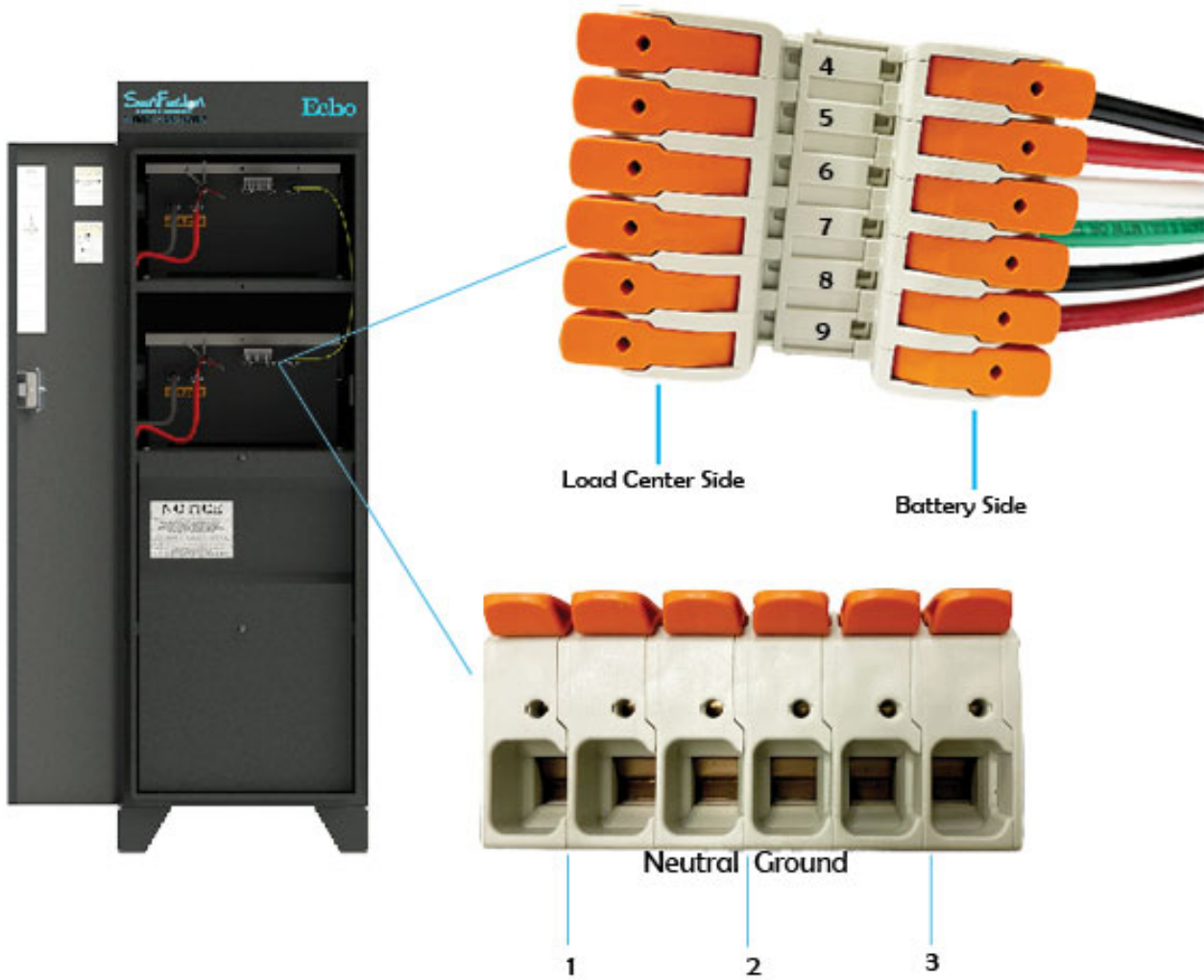


Full System Diagram

- 1) Rapid Shut Down
- 2) Network Parallel
- 3) Solar 500V Max 13.5kW 4 Strings Max
- 4) AUF-2/0 Red, Black, AMP rating to 304 AMPS
- 5) Battery Area
- 6) Battery Terminals
- 7) Battery Box
- 8) 250A DC Breaker
- 9) LED Display
- 10) Battery Dead Front
- 11) Locking Door
- 12) Inverter Area
- 13) Power Button
- 14) 3A Fuse

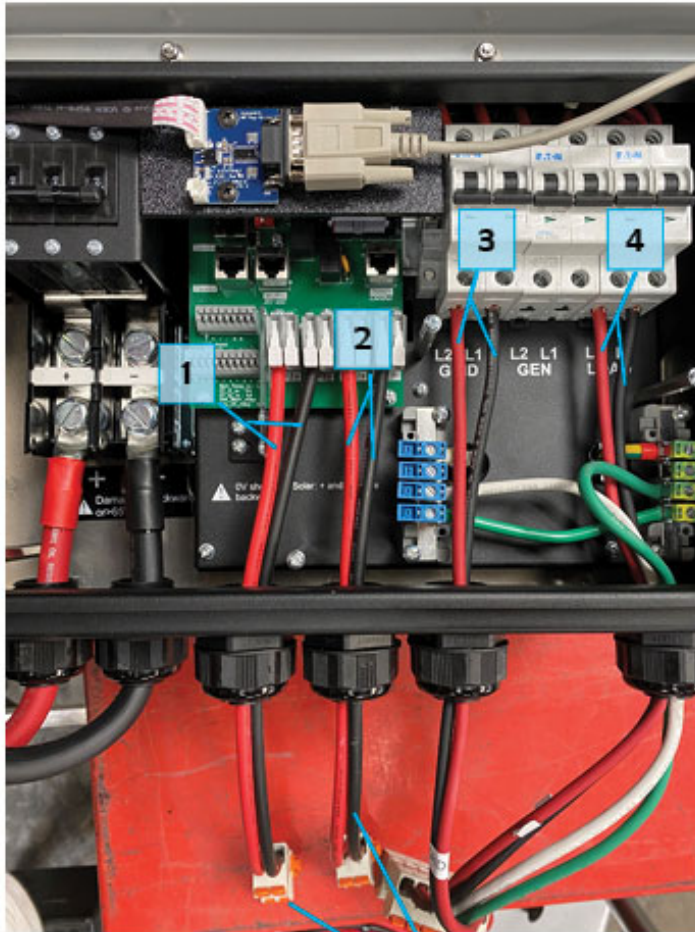


AC Power Cables Battery & Grid Diagram



- 1) Battery out 120/240 AUF-8 Red, Black, AMP rating 83 AMPS (load or critical load out)
- 2) Utility in 120/240
- 3) Grid In 120/240

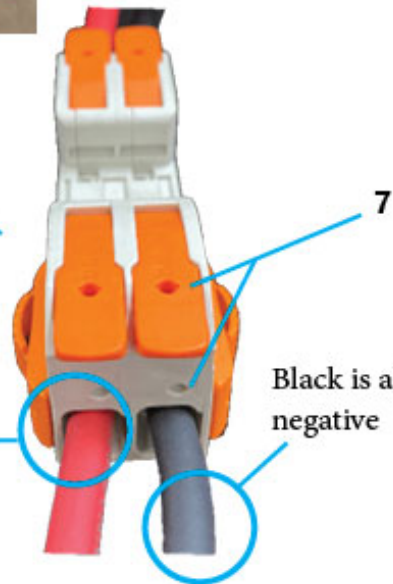
- 4) AC-Out Battery
- 5) AC-Out Battery
- 6) Neutral
- 7) Ground
- 8) AC-In Utility
- 9) AC-In Utility



- 1) PV 1
- 2) PV 2
- 3) Grid In
- 4) Load Out
- 5) Inverter Connect
- 6) Solar Connect
- 7) Testing Ports

Red is always positive

Black is always negative



WiFi Setup (Video: <https://youtu.be/99goz8jHswA>) w/Phone App

1. Download the App:

iPhone: https://apps.apple.com/us/app/powerview-es/id1460941008		Android: https://play.google.com/store/apps/details?id=com.elinter.app.ups

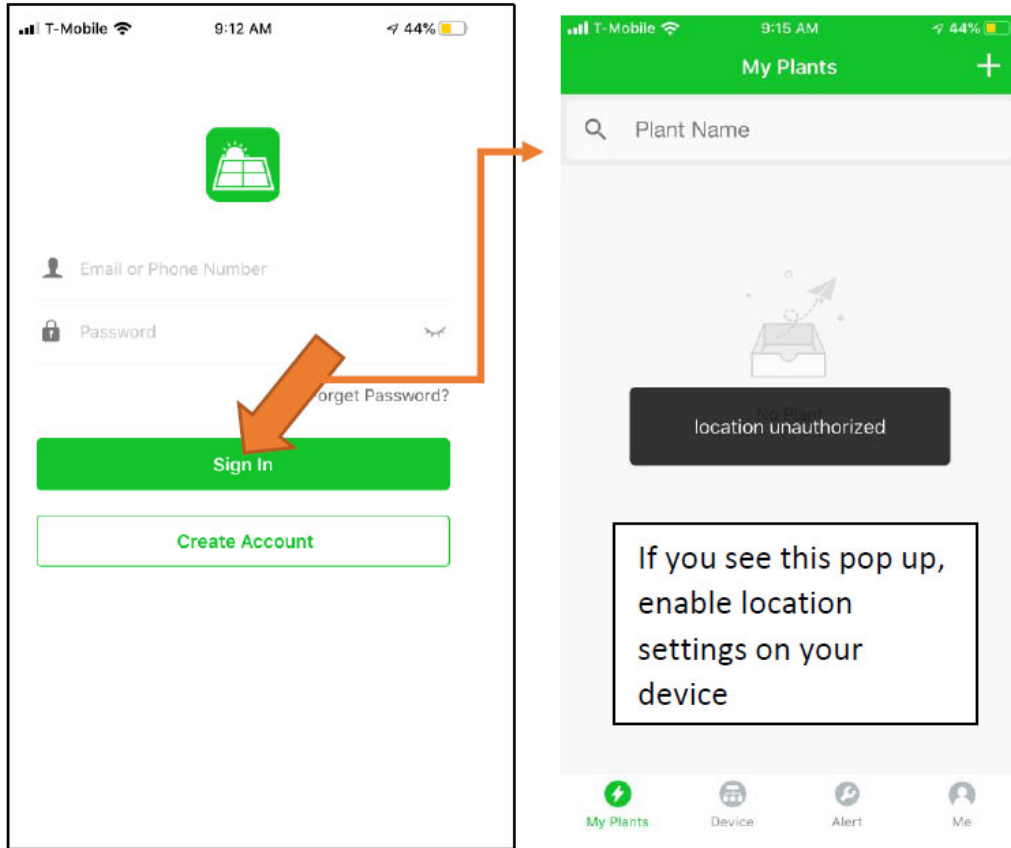
2. Open App

3. Create an Account (Installers Please See Note)

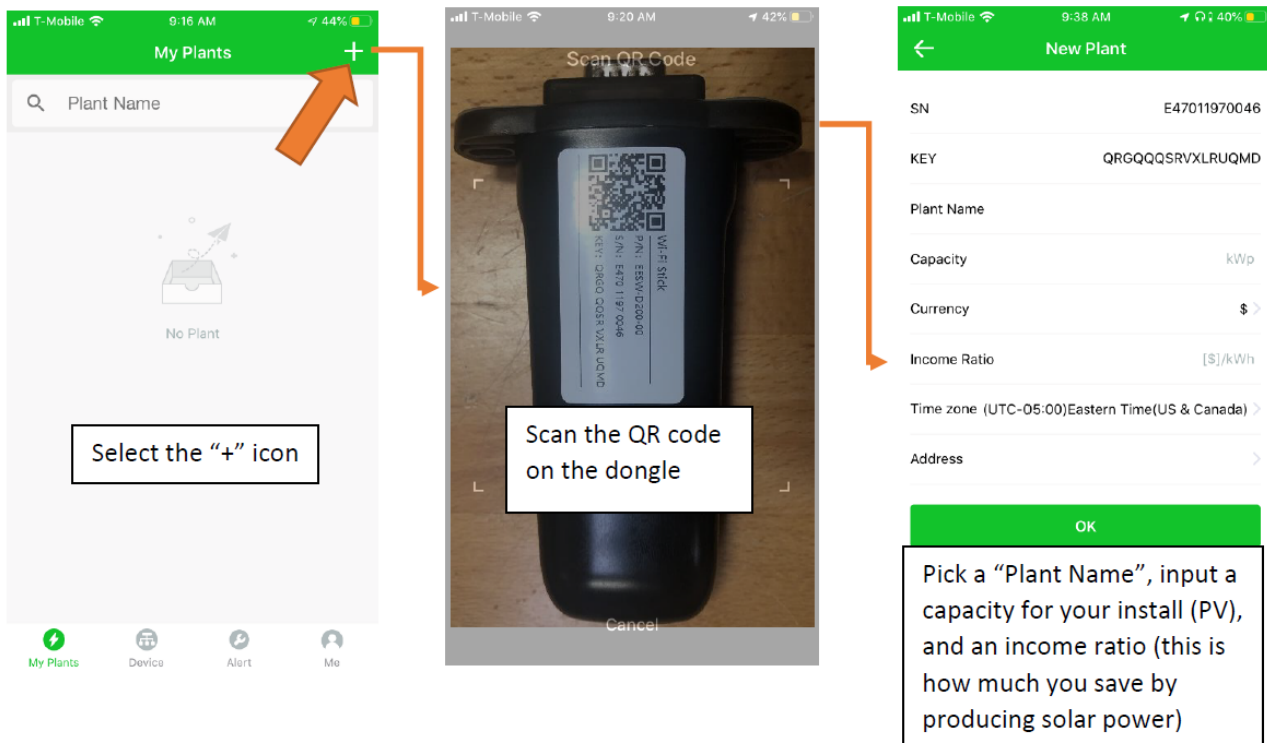
Attention Installers

If you plan to add an install to your installer account for monitoring multiple installs, you must first make your installer account. Then before the customer makes their account, add the WiFi dongle to your account. Each customer must have their own account and each Sol-Ark must have its own Plant in the software.

4. Sign in



5. Add a Plant



6. Connect your system to the internet

Select the "me" icon

Select "Tools"

Select "Find device"

Select "Pls_select"

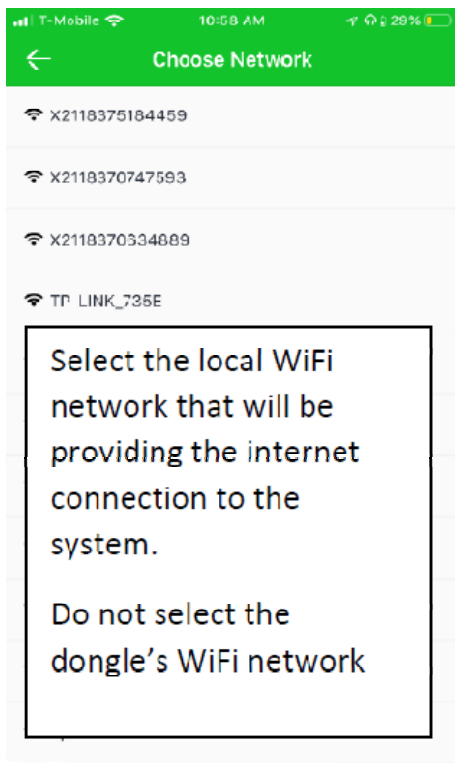
Once you see this screen go to your devices WiFi setting and connect to the WiFi network that starts with:

EAP-####

Password: "12345678"

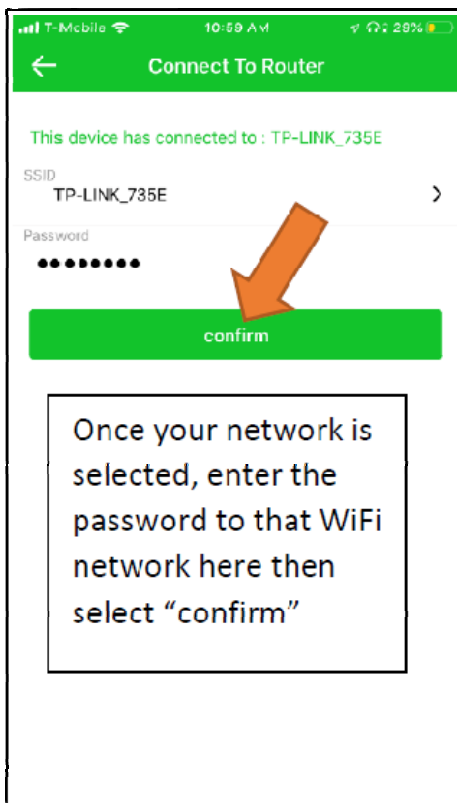
Once connected return to the app

GO SETTING



Select the local WiFi network that will be providing the internet connection to the system.

Do not select the dongle's WiFi network



Once your network is selected, enter the password to that WiFi network here then select "confirm"



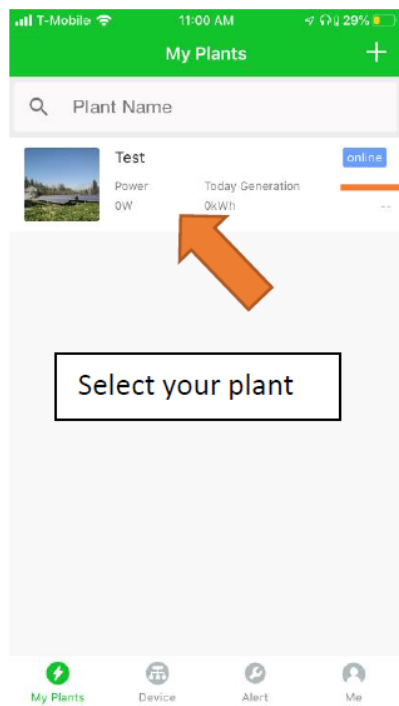
It takes about 60sec for the lights to turn on after setup.

Red LED: Connected to Sol-Ark and has power.

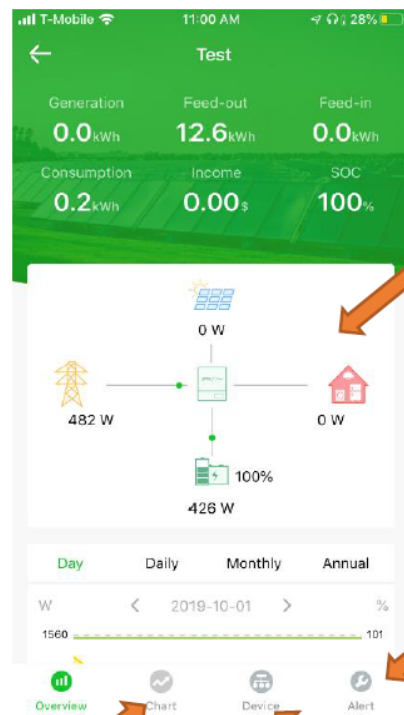
Green LED: Connected to Internet and Server

Flashing Green LED: Connected to router but not server (usually a VPN or firewall issue)

7. Start Monitoring



Select your plant



This screen is the real time view

Alarms

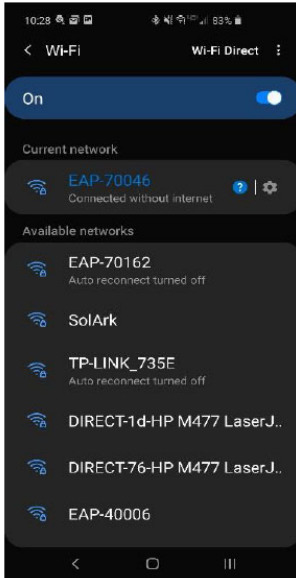
Graphed data

System info and programming

IP Address Setup Instructions (PC or Smart Phone)

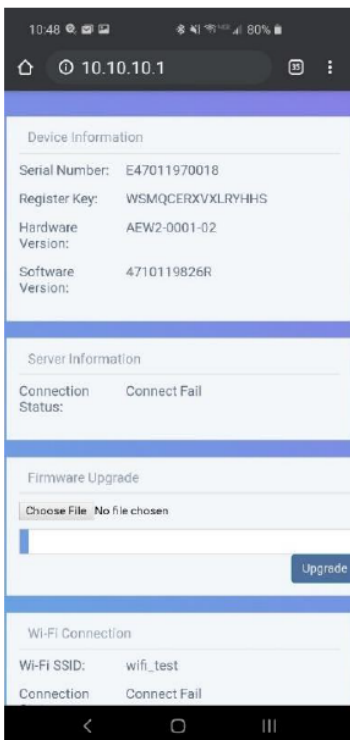
1. Connect to the Dongle:

- a. Settings → Wi-Fi → Select the Network with E##### (The last 5 digits of your SN number)



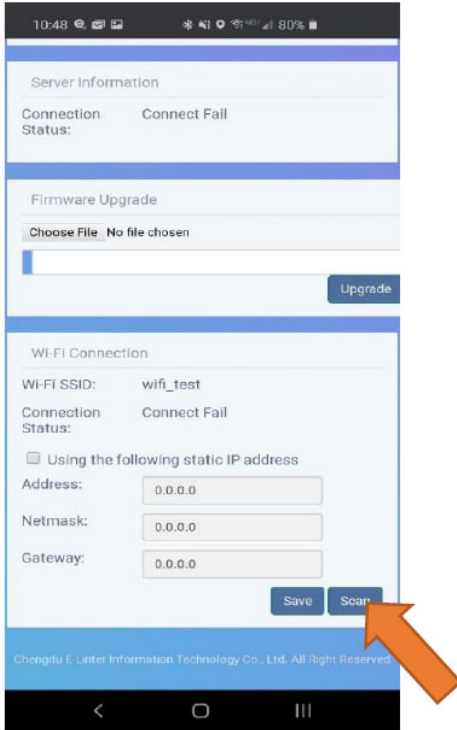
Password: 12345678

*Disclaimer: The wi-fi dongle does not have internet, you still need to be connected to the dongle for this process.



1. Login to Web Portal using any search browser:

- a. Open Google or Safari → type in the search bar 10.10.10.1



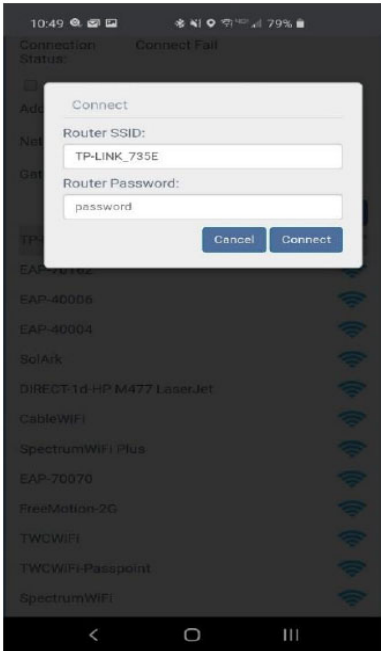
- 3. Scroll Down until you see Wi-Fi Connection:**
- b. Once you see the Wi-Fi connection settings, select the Scan button to search local area networks.



- 4. You will see several networks; choose the home network (Not the dongle's network).**

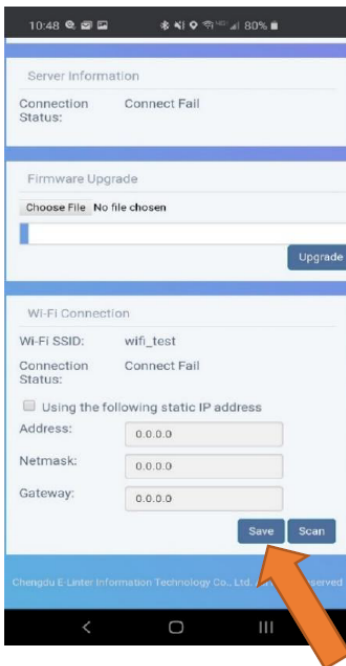
*Disclaimer: Connecting the dongle via the IP address only connects the dongle to the internet.

***YOU MUST STILL CREATE AN ACCOUNT VIA THE POWER VIEW APP.**



5. Enter in the Password for your Network and select Ok
 - c. Select Network → Enter in Password → Select Connect

2. Once Password is Entered, tap the “Save” button underneath the Wi-Fi Information



If Successful you should get a Red and Green light on the Dongle showing that it is connected.

Red LED: Connected to Sol-Ark and has power.

Green LED: Connected to Internet and Server

Flashing Green LED: Connected to router but not server (usually a VPN or firewall issue)



Troubleshooting

NOTE: The Echo is not user-serviceable and must be repaired by a SunFusion certified installer.

If the system is not working correctly, perform the following steps:


- Check the LED on the right side of the Echo to determine its status.
- If it is not possible to communicate with the Monitoring through the SunFusion app, make sure that your home Internet connection is working.
- If both the monitoring and Echo are unresponsive, turn off the Echo by switching it to off. Turn off the AC breakers for the system. Wait at least a minute and turn everything back on.

NOTE: The monitoring is capable of withstanding voltage surges up to 1 kV (measured between line and ground or neutral and ground). If any event such as lightning strikes exceeds this threshold and causes the system to become unresponsive or the SunFusion app loses communication with the system:

1. Turn off Echo.
2. Turn off AC breakers for Echo.
3. Contact SunFusion for support.

Troubleshooting with Echo System Backup

NOTE: The Echo and backup monitoring is not user-serviceable and must be repaired by a SunFusion certified installer.

 **WARNING:** Do not open the dead-front cover inside the Echo. Exposed wiring can present a risk of electrical shock.

- If you experience a brown or blackout during backup operating, reduce the load, and check to make sure the load breakers are not open.
- Check the LED on the right side of the Echo to determine its status.
- If it is not possible to communicate with the Backup Monitoring through the SunFusion app, make sure that your home Internet connection is working.
- If the Backup Monitoring has a Reset button, SunFusion Support may direct you to restart the monitoring by pressing the button for at least one full second. If your system is disconnected from the grid, Echo may stop providing power while the monitoring is restarting.
- If it is necessary to manually disconnect or reconnect to the grid, SunFusion support may direct you to operate the manual override switch in the Backup Monitoring.



CAUTION: Do not remove the protective label or operate the manual override switch unless directed to do so by SunFusion support. Improper operation of the manual override switch can damage your unit.

Turning off the system

If it is necessary to turn off or power cycle the Echo system, it must be done in the proper sequence. On our Echo systems with interconnected solar, always turn off the solar inverter or disconnect the solar source before turning off the Echo unit.

- Turn off or disconnect any interconnected solar generation system.
- Turn off Echo by switching it to OFF position.
- Turn off the AC breaker to Echo.
- Turn off the AC breaker to the backup monitoring (for whole-home backup systems), this may be a breaker inside the backup monitoring.
- Wait a minute before turning the system back on.

Turning on the system

- Turn the AC breakers on for monitoring.
- Turn on Echo.
- Turn on or reconnect the solar generation system.

Technical Support

If you need further assistance, contact the SunFusion Service team at the support phone number for your region. Support numbers for all regions are available at www.sunfusioness.com



What to Do in Case of an Emergency

In the event of any threat to health or safety, always begin with these two steps before addressing the other suggestions below:

- Immediately contact the fire department or other relevant emergency response team.
- Notify all people who might be affected and make sure they evacuate.

In case of fire:


- Turn off Echo, then turn off the AC breaker to Echo.
- Turn off the AC breaker to the monitoring.
- Use an acceptable fire extinguisher (water, CO2, and ABC) to extinguish the fire.

In case of flooding:

- Stay out of the water if any part of the battery, monitoring, or wiring is submerged.
- Turn off Echo, then turn off the AC breaker in Echo.
- Turn off the AC breaker to the monitoring.
- If possible, protect the system by finding and stopping the source of the water, and pumping any water away.
- If any part of the unit is submerged, note the depth of the flooding.
- Contact SunFusion support to determine if the unit is safe to turn back on.

If you notice a strange smell or see smoke:

- Turn off the Echo, then turn off the AC breaker.
- Turn off the AC breaker to the monitoring
- Make sure nothing is in contact with the Echo.
- Ventilate the room properly

 DO NOT touch or enter any part of the body including, but not limited to, skin, eyes, and mouth.

Echo Warranty

SunFusion Echo comes with a warranty whose term depends on the connection of the Echo to the Internet. To secure the full 25-year warranty for Echo, it must be reliably connected to the Internet to allow remote firmware upgrades from SunFusion. If an Internet connection is not established or is interrupted for an extended period and SunFusion is unable to contact you, the warranty may be void.

Intended Use

The SunFusion Echo Battery System is intended to provide external battery power to supplement the Utility devices when AC power is unavailable during power outages and common usage.

Use of the battery with a device that has higher amperage requirements than the output of the battery may cause the internal circuitry of the battery to shut off to protect from thermal runaway.

UES Systems are designed for the usage of the facility, each battery module is designed in series for greater usage.

Compatibility

All device makes and models have different voltage and direct current capability requirements which determine the type of external battery that can be used.

The unique universal design of the SunFusion Echo Battery allows it to power most common devices; however, some devices will require a device-specific connection component that is sold separately from the standard SunFusion Echo Battery Kit. See page 1 for more information.

Average Run Times

Multiple factors will affect how long the SunFusion Echo Battery will power a heavy device, including, but not limited to device type, pressure setting, altitude, humidity usage, and the required connection component.

High Amperage devices will have lower run times as the setting is not constant and changes throughout the night requiring more power to operate the device.

Average run times are based on standard device usage 20A for 9 Hrs, 40A 4.5Hrs, (60A 2.25Hrs MAX)

Uninstall and disposal

1.1 Uninstall

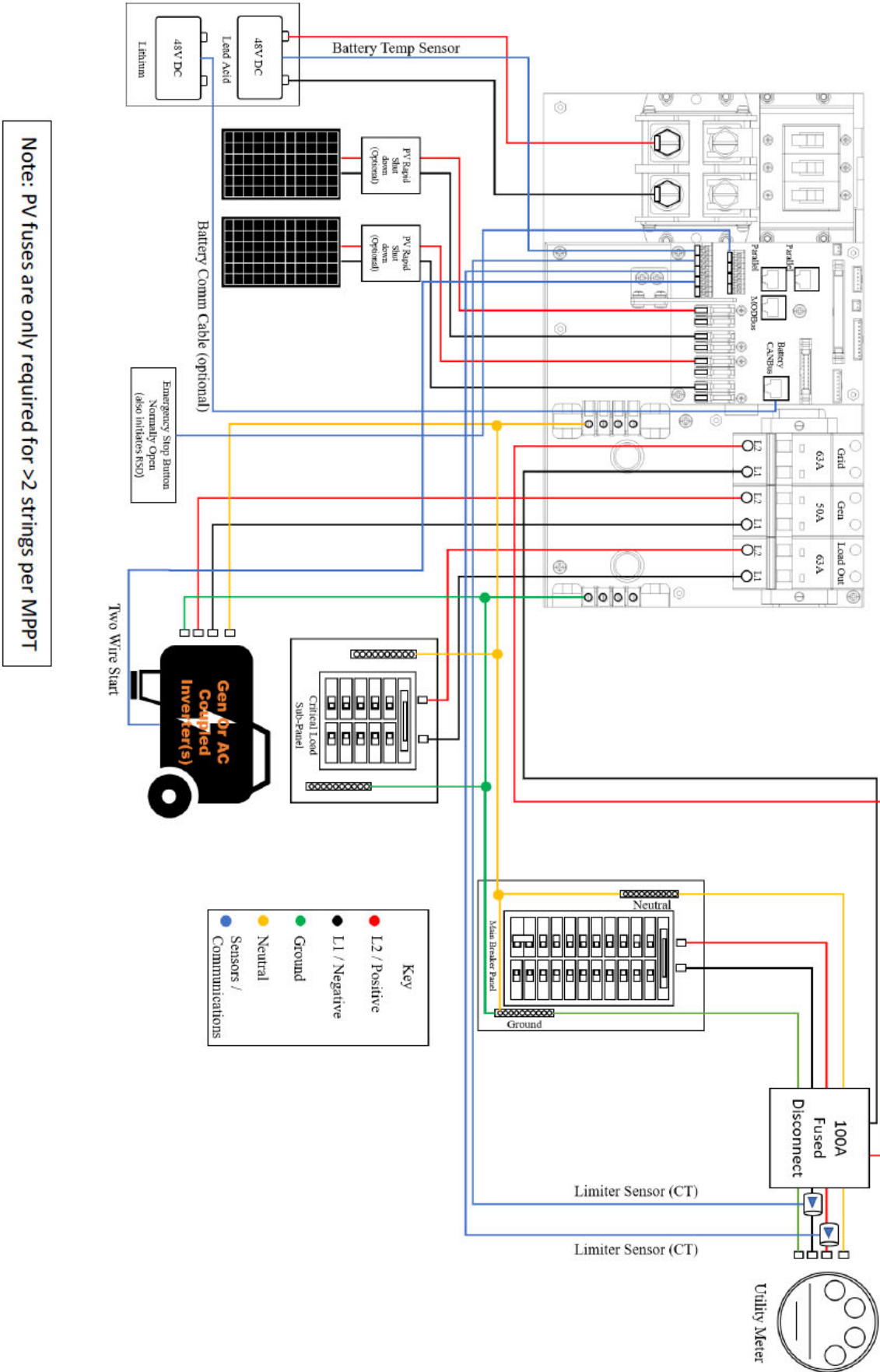
DANGER Improper uninstallation of the storage system Danger to life due to electrocution!
The storage system must only be uninstalled by licensed electricians.



1.2 Disposal **CAUTION** Improper transport of battery modules Fire outbreak at battery modules or emission of toxic substances! Transport the battery modules. Turn off 250A Breaker ship back to SunFusion. Never transport damaged battery modules. **CAUTION** Improper disposal of battery modules Explosion or fire outbreak at battery modules or emission of toxic substances! Do not dispose of batteries in fire. The storage system and the batteries it contains must not be disposed of as domestic waste! Dispose of the storage system and the batteries it contains in an environmentally friendly way through suitable collection systems. Contact SunFusion Energy Systems to dispose of old batteries.

Single Line for One Inverter

Sol-Ark 12K Line Side Tap Wire Diagram 120V/240V



Single Line for Two Inverters

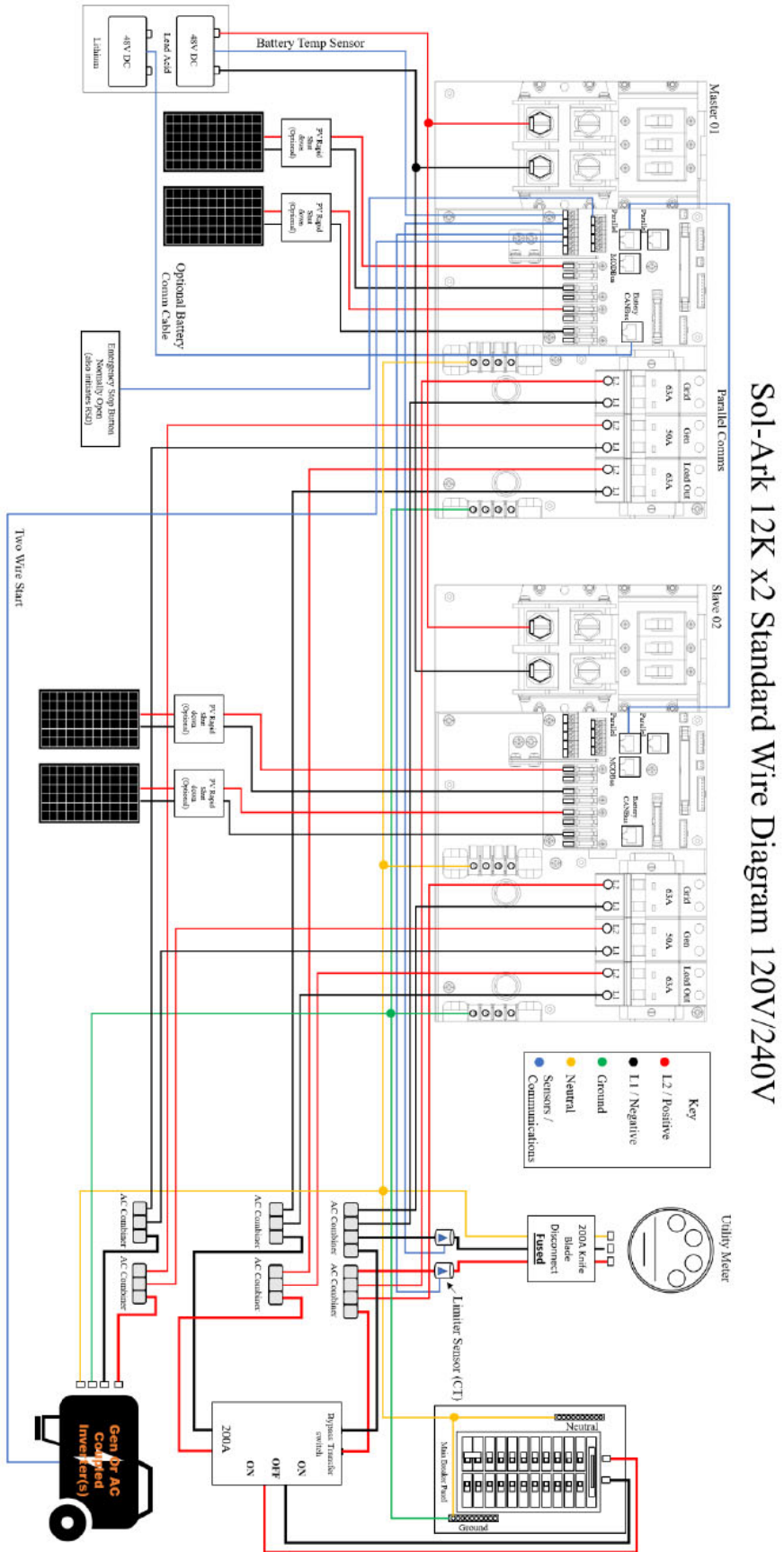


Diagram 5



REV 4/1/21

25 Year Product Factory Warranty

SunFusion Energy Systems, Inc. ("SunFusion") is the warrantor of the ECHO system.

SECTION 1

SunFusion warrants to the original retail purchaser ("Purchaser") that the SunFusion products covered by this warranty are free from defects in workmanship and materials for a period of twenty-five (25) years from the date of first installation by an authorized SunFusion dealer ("the Warranty Period"). Defects in workmanship and materials means a defect in workmanship or materials that results in a failure of the product such that it is not able to store at least eighty percent (80%) of the labeled storing capacity, which failure is not caused by any misuse or damage to the product while in the possession of the Purchaser. Warranty claims may only be made by either original purchaser or person to whom the title to the product has been transferred to with photo documents, only if the product has been registered through SunFusion's product registration website. Registration by the Purchaser must be within 30 days of the installation date by an authorized SunFusion dealer, and covered product must remain in its original location and configuration. Registration by an owner acquiring the product from the Purchaser must be within 30 days of the first transfer date and requires that the product was installed by an authorized SunFusion dealer and the product must remain in its original location and configuration.

SECTION 2

This warranty covers SunFusion models ECHO, which are manufactured by SunFusion, which were sold to the end user by SunFusion or through an authorized SunFusion dealer as new products in the USA, which were installed in the USA by an authorized SunFusion dealer after January 1, 2018, and which bear the original SunFusion serial number.

SECTION 2.1

10-Year Limited Warranty for SOL-ARK (Portable Solar LLC) Products. Sol-Ark provides a Ten-year (10) limited warranty ("Warranty") against defects in materials and workmanship for its Sol-Ark products ("Product"). The term of this Warranty begins on the Product(s) initial purchase date, or the date of receipt of the Product(s) by the end user, whichever is later. This must be indicated on the invoice, bill of sale from your installer. This Warranty applies to the original Sol-Ark Product purchaser and is transferable only if the Product remains installed in the original use location. Please call Sol-Ark to let us know if you are selling your home and give us name and contact of the new owner. All warranties by the build manufacture must be met and passed before the extended warranty by SunFusion is adopted.

Extended 15-Year Limited Warranty for SOL-ARK follows all Sol-Ark 12K warranty values after initial warranty. This warranty is carried by SunFusion Energy Systems, this cost is designated by SunFusion.

Monitoring is not accepted as a warranty claim by any of SunFusion's Dealers or affiliates.

Outback Power Warranty is by outback power and their terms and is warranted as such until further notice. RMA's are direct to Outback Power.

SECTION 3

If there is a defect in materials or workmanship as defined above, the warrantor will remedy the failure or defect, without charge, subject to the limitations, conditions and exclusions in this warranty. The remedy will consist of repair or replacement of the product at the warrantor's option. However, the warrantor will not elect refund unless it is unable to provide replacement, and repair is not commercially practicable and cannot be made within the time for performance, or unless the Purchaser is willing to accept such refund. After a reasonable number of attempts by the warrantor to remedy a covered defect or malfunction, the Purchaser is entitled to either a refund or replacement of the product or its component part or parts. Replacement of a component part includes the cost of removal, shipping, repair labor, replacement parts and re-installation. Warrantor may use replacement parts of improved design in repairs or replacements. This warranty does not cover cosmetic defects which do not directly influence energy production, or degrade form, fit and function. Inverter, Monitoring, Charge Controller that are not made by SunFusion will hold warranty per said manufacture specs.

SECTION 4

Situations not covered by this warranty or other obligation by SunFusion:

1. Installation or commissioning through any person or entity other than a then-authorized SunFusion dealer.
2. Modifications, changes, or attempted repairs, except as conducted by a then-authorized SunFusion dealer.
3. Events beyond SunFusion's reasonable control, including but not limited to acts or omissions of the Purchaser, acts of God or government, natural disasters or storms, fire, act of terrorism, explosion, riot, blackout, war or political strike, labor disputes, failure or delay of third-party transportation, or the unavailability of raw materials.
4. Failure to comply with any SunFusion user manual or applicable safety regulations.

SECTION 5

This warranty requires that the covered product will be properly and continuously connected to SunFusion through the internet as reasonably determined by SunFusion and expressly excludes any defects resulting from any acts or omissions that prevent SunFusion from accessing the covered product online as may be required for software upload or performance data download.



SECTION 6

Limited Performance Warranty guarantees that the actual storing capacity of the original battery module included in the Covered Product ("**Battery Module**") will be not less than the following of the labeled storing capacity: Battery systems from SunFusion Energy Systems Inc, cover all ECHO Products this guarantee covers a warranty of production for @100% DOD for 25 years 10,000 Cycles.

SECTION 7

To obtain performance of any obligation under this warranty, the consumer must:

1. Complete and send to SunFusion an SunFusion warranty claim notice form. Forms are available by contacting SunFusion using the information on this form or on SunFusion's website. To help complete the warranty claim form, please have your date of installation, serial number of the covered product, the name of your authorized SunFusion dealer and your proof of purchase available.
2. Submit the completed warranty claim form to SunFusion and provide any other information requested by SunFusion.
3. Upon approval of your warranty claim information, SunFusion will arrange to have a technician inspect the covered product for the purpose of determining how to proceed with the warranty services.

SECTION 8

If a dispute arises out of or relates to this warranty, or the breach thereof, and if the dispute cannot be settled through negotiation, the parties agree first to try in good faith to settle the dispute by mediation administered by the American Arbitration Association ("AAA") under its then applicable rules and procedures before resorting to arbitration, litigation, or some other dispute resolution procedure. Any controversy or claim arising out of or relating to this contract, or the breach thereof, and not resolved by mediation, shall be settled by arbitration administered by the AAA under its then applicable rules and procedures, and judgment on the award rendered by the arbitrator(s) may be entered in any court having jurisdiction thereof. In the event that AAA mediation or arbitration is not available or not practical in SunFusion's reasonable judgment, SunFusion may substitute reasonably equivalent mediation and/or arbitration.

SECTION 9

This warranty gives you specific legal rights, and you may also have other rights that vary from state to state. The warranty terms and conditions above are the exclusive remedies and SunFusion's sole liability for any warranty claims. The Warranty Period for any SunFusion product furnished to correct a warranty failure will be the unexpired term of the Warranty Period applicable to the original repaired or replaced SunFusion product.

SunFusion shall in no event be liable for any consequential, incidental, indirect, punitive or special damages, even if SunFusion has been advised of the likelihood of such damages. In no event will SunFusion be held responsible or liable for any personal injuries resulting from the

use of any SunFusion products.

This warranty and SunFusion's obligation is in lieu of all warranties, express or implied, including without limitation, the implied warranties of merchantability and fitness for particular purpose, all other representations to the Purchaser and all other obligations or liabilities, including liability for incidental and consequential damages on the part of SunFusion or SunFusion's authorized dealer with respect to the sale or use of the items warranted.

NOTE: SOME STATES DO NOT ALLOW THE EXCLUSION OR LIMITATION OF INCIDENTAL OR CONSEQUENTIAL DAMAGES, SO THE ABOVE LIMITATIONS OR EXCLUSIONS MAY NOT APPLY TO YOU. OTHER THAN AS SET FORTH ABOVE SunFusion MAKES NO OTHER WARRANTY OR REPRESENTATION OF ANY KIND WHATSOEVER, EXPRESS OR IMPLIED, EXCEPT THAT OF TITLE, AND ALL IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE HEREBY DISCLAIMED.

If any provision of this warranty is declared invalid as contrary to law or public policy, the remaining provisions hereof shall continue to remain in full force and effect.



1.1 Uninstallation and disposal

Uninstallation

DANGER Improper uninstallation of the storage system **Danger to life due to electrocution!**

The storage system must only be uninstalled by licensed electricians.



1.2 Disposal CAUTION Improper transport of battery modules **Fire outbreak at battery modules or emission of toxic substances!** Transport the battery modules. Turn off all breakers to ship back to SunFusion. Never transport damaged battery modules. **CAUTION** Improper disposal of battery modules **Explosion or fire outbreak at battery modules or emission of toxic substances!** Do not dispose of batteries in fire. The storage system and the batteries it contains must not be disposed of as domestic waste! Dispose of the storage system and the batteries it contains in an environmentally friendly way through suitable collection systems. Contact SunFusion Energy Systems to dispose of old batteries.

 **WARNING**

This product can expose you to chemicals including Lithium and other chemicals here which is are known to the State of California to cause cancer and birth defects or other reproductive harm.

For more information go to www.P65Warnings.ca.gov