NATIVE SOLAR PRODUCTS INC.

Solar Trailer Owner's Guide

Operating, startup, shutdown, safety, and basic troubleshooting

Inverter: EG4 FlexBOSS21 Hybrid Inverter[1]

Guide version: Draft v1.0 | Prepared for customer handoff | Date: _____

[1]EG4 Electronics, EG4 FlexBOSS21 product page, https://eg4electronics.com/categories/inverters/eg4-flexboss-21/

Contents

Customer and unit information

Item	Customer / unit details
Customer name	_____
Trailer VIN	_____
Delivery date	_____
Battery configuration	_____
Generator option installed	Yes / No / Not applicable
Native Solar Products contact	Phone: 951-615-6555 | Email: _____
Signature Solar equipment support	Phone: (903) 441-2090 | Email: tech@signaturesolar.com

For questions about the trailer, installation, system integration, or how the complete unit was built, contact Native Solar Products. For EG4 equipment troubleshooting, warranty/RMA direction, and technical equipment support, customers may also contact Signature Solar technical support at (903) 441-2090 or tech@signaturesolar.com.[2]

Important safety information

Read before operating

This trailer contains solar PV voltage, battery current, and 120/240 VAC power. Incorrect operation can cause equipment damage, electric shock, serious injury, or death. Do not open electrical enclosures, change wiring, bypass breakers, defeat safety devices, or connect/disconnect PV, battery, grid, generator, or load conductors while the inverter is operating.[3]

Operator responsibilities

- Operate only from the exterior switches, breakers, display/app, and customer connection points provided by Native Solar Products.
- Keep untrained people away from the power section during startup, shutdown, charging, and troubleshooting.
- Stop using the trailer if you smell burning insulation, see smoke, hear abnormal arcing, notice damaged cables, or see a red fault light.

[2]EG4 Electronics, EG4 FlexBOSS21 Hybrid Inverter User Manual v1.3.5, https://eg4electronics.com/wp-content/uploads/2024/08/FlexBOSS-21-Manual.pdf

[3]Signature Solar contact page, https://signaturesolar.com/contact-us/

- Do not overload the AC output. Start large loads one at a time and verify the system remains normal before adding more load.
- Do not wash the inverter, battery area, electrical panels, or connectors with a pressure washer.

Qualified personnel only

- Any wiring changes, internal inverter work, breaker replacement, PV string testing, AC grid connection, generator wiring, firmware changes, or troubleshooting inside an energized cabinet must be performed by qualified personnel.
- Utility-interactive operation, grid backfeed, export limiting, CT placement, permitting, and grounding/bonding must follow the applicable electrical code, local authority requirements, and utility approval.

Trailer overview

The Native Solar Products solar trailer is a mobile power platform designed to provide solar charging, battery storage, inverter output, and optional generator backup in a rugged trailer-mounted package. The system is intended for jobsite power, temporary power, off-grid projects, emergency backup, and other applications where clean mobile power is needed.

Main components

Component	Purpose	Owner notes
Solar panels	Charge the battery bank through the inverter's PV inputs.	Keep panels clean and unshaded. Do not modify PV wiring.
Battery bank	Stores energy for nighttime use and heavy loads.	Watch state of charge. Avoid running to empty unless instructed.
EG4 FlexBOSS21 inverter	Converts battery/PV energy to AC power and manages charging.	Normal control is through app/web interface, status lights, and provided breakers.
AC load panel / outlets	Feeds customer loads.	Turn load breakers on last during startup and off first during shutdown.
Rapid shutdown / emergency stop	Cuts AC output and initiates PV rapid shutdown.	Use for emergencies only. Confirm cause before restart.
Optional generator	Provides backup charging when battery state of charge is low and solar is not enough.	If equipped, follow the generator manufacturer's operating manual and Native Solar settings.

Before each use

Walk-around inspection

- Park the trailer on stable, level ground. Chock wheels when required and keep the area around the trailer clear.
- Look for damaged tires, loose panels, loose mounts, open cabinets, damaged cords, missing covers, or signs of impact.
- Confirm ventilation openings are clear and that nothing is blocking the inverter heat sink or fans.
- Confirm the AC load cords and plugs are dry, undamaged, properly rated, and routed where vehicles or equipment will not crush them.
- Check the battery state of charge before applying heavy loads.
- Confirm the rapid shutdown button is not pressed and the system is ready to start.

Do not start if

- Any electrical enclosure is open or wet.
- Any cable, connector, breaker, or plug appears burned, melted, cracked, loose, or exposed.
- The trailer has been involved in an accident, tipped, flooded, or exposed to severe impact.
- A red fault light remains on after restart or a fault returns repeatedly.

Normal startup procedure

Use this sequence for normal daily startup. The EG4 manual sequence is battery first, PV second, grid/input power third if used, and load breakers last.[4]

Do not start under load

Before startup, turn off or disconnect large customer loads. Load breakers should be off until the inverter is running normally.

1. Confirm the trailer is parked safely, panels are secure, cabinets are closed, cables are undamaged, and the rapid shutdown button is reset.
2. Turn ON the battery disconnect or battery breaker. If the trailer uses multiple battery modules, power them on as instructed at delivery.
3. Wait for the inverter/app/status light to wake up and confirm no red fault light is present.
4. Turn ON the PV disconnect or PV isolator. Solar charging will begin when sunlight and PV voltage are available.

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5. If the trailer is connected to an approved AC input, grid source, or generator input, turn ON the approved input breaker only after the battery and PV side are operating normally.
6. Turn ON the AC load breaker or individual outlet breakers last.
7. Add customer loads one at a time. Start the largest motor load first, then add smaller loads after the inverter remains stable.

Startup confirmation

- Green solid light means the inverter is working normally.
- Green flashing about once per second means standby.
- Yellow means warning and should be investigated before heavy use.
- Red means fault. Stop operation, remove loads if safe, and contact support.

Normal shutdown procedure

Use this sequence for normal daily shutdown. The EG4 manual sequence is standby first, load breaker off, grid/input breaker off, PV disconnect off, battery breaker off, then wait for LEDs to go off.[5]

1. Turn OFF or unplug customer loads. Let large motors and tools stop completely.
2. Place the inverter in Standby mode using the EG4 app, EG4 Monitor Center, or the approved display/control method supplied with the trailer.
3. Turn OFF the load breaker or individual outlet breakers.
4. Turn OFF the grid/input breaker, shore-power breaker, or generator input breaker if connected.
5. Turn OFF the PV disconnect or PV isolator.
6. Turn OFF the battery breaker or battery disconnect.
7. Wait until inverter LED lights go off before opening cabinets or transporting the trailer.

> **Never disconnect under load**
>
> Do not disconnect battery, PV, AC input, generator input, or load wiring while the inverter is operating or while loads are running. Turn loads off first and follow the shutdown order.

Emergency shutdown

In an emergency, press the rapid shutdown or emergency stop button. The FlexBOSS21 rapid shutdown system cuts inverter AC output and is designed to drop PV conductor voltage to less than 30 V in 30 seconds.[6]

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Use emergency shutdown for

- Fire, smoke, burning smell, sparking, arcing, or visible electrical damage.
- Flooding, water intrusion, major collision, trailer tip-over, or unsafe site conditions.
- Any situation where personnel safety is more important than preserving power.

After emergency shutdown

1. Keep people away from the trailer and connected loads.
2. Do not restart until the cause is identified and corrected.
3. Contact Native Solar Products for trailer/system support and Signature Solar technical support for EG4 equipment troubleshooting if needed.
4. If fire, shock, or utility hazard is involved, contact emergency services and the local authority having jurisdiction.

Using AC power safely

- Know the load before plugging it in. Large compressors, pumps, welders, HVAC units, and battery chargers can create high starting surge.
- Start one large load at a time. If lights dim, equipment stalls, or the inverter warns/faults, reduce load.
- Use only properly rated cords and connectors. Undersized extension cords waste power, overheat, and can create a fire hazard.
- Keep plugs and outlets dry. Use weather-rated equipment where required.
- Do not backfeed a building, panel, transfer switch, or utility connection unless the system was installed and permitted by qualified personnel.

Practical load management

If the inverter is overloaded, it may shut down and then restart almost immediately. If this happens, reduce or restrict the connected load before continuing so the inverter is not overloaded again.

If this happens	What to do
Yellow warning light	Reduce load and check the EG4 app or monitor for alarms.
Red fault light	Turn off loads if safe, shut down normally if possible, and contact support.
Inverter shuts down and restarts almost immediately	Reduce or restrict the connected load. Repeated overloads can interrupt power and may stress the inverter and connected equipment.

If this happens	What to do
Breaker trips	Unplug loads, identify the overloaded or faulty device, and reset only after the issue is corrected.
Battery state of charge drops quickly	Reduce load, improve solar exposure, or use generator/input charging if equipped and approved.

Solar and battery operation

Solar charging

- Solar output depends on sun angle, shade, panel cleanliness, temperature, and season.
- Even small shadows can reduce production. Park where panels have the best available sun exposure.
- Do not place tools, cords, tarps, job materials, or signage on top of solar panels.
- Do not alter PV wiring or plug/unplug PV conductors while the inverter is operating.

Adding solar panels or future PV strings

500 V maximum per added string

If the customer or a qualified technician adds panels to the inverter, each added PV string must stay at or below 500 V. Anything over 500 V per string may damage the inverter. Confirm the string voltage before connecting any added panels, including cold-weather voltage correction.

- Native Solar Products provides a future PV string on each unit. This future string is left hanging out of the inverter and consists of two PV wires with connectors.
- If more than one additional PV string needs to be added, the additional string or strings must go directly into one of the PV ports in the inverter.
- Do not connect additional panels to the future PV string unless the final string voltage, polarity, connector type, wire routing, fusing, and weatherproofing have been verified by a qualified technician.
- Contact Native Solar Products at 951-615-6555 before adding panels or using the future PV string if there is any question about safe configuration.

Battery use

- Watch battery state of charge and plan heavy loads around available energy.
- If the system gives a low-battery warning, reduce or remove loads and allow the battery to charge.
- If the battery is run down below 10% state of charge, the inverter will shut down. It will restart on its own as soon as the solar panels start producing power again.

- If the system reports battery communication failure, battery open, battery high voltage, or battery low voltage, stop heavy operation and contact support.
- Store and operate within the temperature limits supplied for the trailer and the installed batteries. If the inverter is installed in the power cabinet, the FlexBOSS21 listed operating range is -13 degrees F to 140 degrees F, with cooling by fans and NEMA 4X enclosure rating.

The FlexBOSS21 uses a 51.2 VDC nominal battery system, supports a 40-60 VDC operating range, and includes a 300 A battery breaker in the inverter.[7]

Optional generator operation

Some Native Solar Products trailers may be equipped with an automatic or manual generator charging option. If your unit does not include a generator, skip this section.

Two-wire start generator option

- If the customer adds the two-wire start generator option, the inverter is set to automatically trigger the generator to start when the battery reaches 20% state of charge.
- With the two-wire start generator option, the inverter is set to turn the generator off when the battery reaches 30% state of charge.
- Do not change the generator start/stop state-of-charge settings unless directed by Native Solar Products or a qualified technician.

Tri-fuel generator fuel use

- If equipped, the generator is tri-fuel and may operate on gasoline, propane, or natural gas, depending on the installed generator model and connection setup.
- The generator itself carries approximately 10 gallons of gasoline onboard.
- The trailer may also include a propane or natural gas connection for alternate fuel operation.
- If switching from gasoline to propane, it is advised to first start the generator on gasoline and then switch the generator to propane after it is running.
- Use only the correct fuel type, hoses, regulators, fittings, and shutoff valves for the generator model. Inspect fuel connections before use and never operate with a fuel leak.

Monthly generator exercise

- If the trailer has the generator option, customers are encouraged to press the generator exercise start button in the app once per month.
- Monthly exercise helps confirm that the generator starts properly and remains ready for automatic charging when battery state of charge drops.

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- Only exercise the generator outdoors with proper ventilation and safe exhaust clearance.
- It is recommended to change the generator oil every 50 hours of generator operation, or sooner if required by the generator manufacturer's manual.
- Read and follow the generator manufacturer's manual before operating.
- Operate the generator outdoors only with proper exhaust clearance. Never run a generator in an enclosed space.
- Check fuel, oil, ventilation, and exhaust clearance before use.
- Allow the inverter and generator controls to manage charging if the unit was configured for automatic start/stop.
- Do not change generator wiring, transfer equipment, input breakers, or auto-start settings unless directed by Native Solar Products or qualified service personnel.

Carbon monoxide hazard

Generator exhaust can kill. Keep exhaust away from people, doors, windows, vents, office trailers, containers, and occupied areas.

Inverter status lights and monitoring

The FlexBOSS21 uses app/web monitoring, and may also use the optional EG4 FlexBOSS Screen Kit. The manufacturer's LED meanings are summarized below.[8]

Light / status	Meaning	Owner action
Green solid	Working normally	No action needed.
Green flashing once per second	Standby	Normal if the unit is intentionally in standby.
Green flashing very fast	Firmware update in progress	Do not power down. Wait until complete.
Yellow solid	Warning, inverter may stop working	Reduce load and troubleshoot before continued heavy use.
Red solid	Fault, inverter will stop working	Stop operation and contact support if it does not clear after proper shutdown/restart.

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Monitoring portal access

- New model units come with a monitoring dongle. This dongle is the communication link for the monitoring platform and uses cellular service, similar to a cell phone connection. The cellular service is prepaid for five years.
- The free monitoring portal is normally set to read-only for customers. This allows the customer to view system status, production, battery state of charge, warnings, and general operating information without changing inverter settings.
- Only qualified technicians should change inverter settings. Incorrect settings can affect battery charging, generator behavior, grid interaction, export limits, safety functions, and system performance.
- If a customer has a qualified technician who will be responsible for changing inverter settings, contact Native Solar Products at 951-615-6555. Native Solar Products can review the request and unlock the settings portal when appropriate.
- Customers should not attempt to bypass read-only access, share technician credentials, or change protected settings without approval from Native Solar Products.

Firmware and settings

- Do not start firmware updates unless the internet connection is stable and the controlling phone/tablet has enough battery to complete the update.
- Do not close the app or power down the system during a firmware update.
- Do not change battery, grid, export, time-of-use, generator, or parallel-inverter settings unless instructed by Native Solar Products, Signature Solar technical support, or qualified personnel.

Routine maintenance

The inverter manual recommends monthly, three-month, and six-month inspection intervals for cooling clearance, operating behavior, abnormal heat/noise, and cable/accessory condition.[9]

Interval	Owner inspection	Action if problem is found
Before each use	Walk around trailer, inspect cords, confirm no damage, confirm ventilation is clear.	Do not start until corrected.
Monthly	Confirm nothing blocks the inverter heat sink or airflow.	Shut down and clear obstruction before operation.
Every 3 months	Check for abnormal heating, fan noise, vibration, alerts, and unstable operation.	Reduce use and contact support if abnormal.

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Interval	Owner inspection	Action if problem is found
Every 6 months	Inspect accessible cables, accessories, cabinet condition, panels, mounts, tires, and safety labels.	Replace damaged parts through qualified service.
Every 50 generator hours	Change generator oil if the trailer is equipped with the generator option.	Follow the generator oil type and service procedure in the generator manufacturer's manual.
After transport	Inspect panel mounts, cabinets, connectors, tires, lights, hitch, and safety chains.	Correct transport damage before powering up.

Cleaning

- Clean solar panels with filtered water, a soft mop, and a squeegee when the panels are cool. Do not use detergent on the panels.
- Do not spray water into inverter vents, battery compartments, electrical panels, outlets, or connectors.
- Keep dust, leaves, packaging, rags, and jobsite debris away from cooling vents and cabinet openings.

Basic troubleshooting guide

Problem	Likely cause	Owner action
No AC power at outlets	Load breaker off, inverter in standby, low battery, fault, or disconnected output.	Check status light, battery SOC, and breakers. Start up in the correct order.
PV not charging	Low light, shaded panels, PV disconnect off, dirty panels, or PV alarm.	Check sun exposure, clean panels if needed, confirm PV disconnect is on.
Battery drains fast	Load too large, poor sun, battery not fully charged, or generator/input not charging.	Reduce loads and allow charging time.
Inverter shuts down and restarts almost immediately	Inverter overload.	Reduce or restrict the load on the inverter before continuing. Start large loads one at a time and avoid repeated overloads.
Inverter shut down after very low battery	Battery state of charge dropped below 10%.	Remove unnecessary loads and allow the solar panels to begin producing

Problem	Likely cause	Owner action
		power. The inverter will restart on its own once solar production is available.
Red fault light	Inverter fault condition.	Turn off loads if safe, shut down, wait, restart once. If fault returns, contact support.
Yellow warning light	Warning condition, overload, heat, communication issue, or abnormal input.	Reduce load, check ventilation, and review app alarms.
RSD active	Rapid shutdown button pressed or external E-stop circuit open.	Confirm emergency condition is cleared, reset only when safe, then follow normal startup.
Overload or breaker trip	Connected equipment exceeds output, short, surge, or bad cord.	Disconnect loads, inspect cords, reset only after cause is corrected.

When in doubt, shut down

If you are unsure whether the trailer is safe, remove loads if safe, perform a normal shutdown, keep people clear, and call Native Solar Products or Signature Solar technical support.

Transport, storage, and jobsite setup

Before towing

- Shut down the inverter completely and wait for LED lights to go off.
- Secure cabinets, cords, panel assemblies, stabilizers, and loose accessories.
- Check tires, lug nuts, hitch connection, safety chains, breakaway system if equipped, trailer lights, and registration requirements.
- Do not tow with cords connected, cabinets open, or loads attached.

Storage

- Store the trailer where it is secure, ventilated, and protected from unnecessary impact or standing water.
- Follow the battery manufacturer's storage state-of-charge and temperature requirements.
- Inspect and recharge batteries periodically during long storage so the battery bank does not fall below safe limits.

- Keep the inverter and electrical equipment protected from direct abuse, debris buildup, pests, and corrosive materials.

Support and service

Need help with	Who to contact	Contact information
Trailer setup, trailer operation, Native Solar build details, customer handoff, field service, installation questions	Native Solar Products Inc.	Phone: 951-615-6555 | Email: _____
EG4 inverter troubleshooting, RMA direction, equipment technical help, installed EG4 product support	Signature Solar technical support	Phone: (903) 441-2090 | Email: tech@signaturesolar.com
Fire, shock hazard, utility emergency, medical emergency	Emergency services / local authority	Call 911 or the local emergency number.

Signature Solar states that its technical support team can troubleshoot remotely by phone, email, or video if needed, and lists (903) 441-2090 and tech@signaturesolar.com for technical support.[10]

Information to have ready before calling

- Trailer serial number and customer name.
- Inverter model: EG4 FlexBOSS21.
- Battery state of charge and whether PV, battery, grid/input, generator, and load breakers are on or off.
- Exact warning, alarm, or fault shown in the EG4 app or on the display.
- Photos of the status lights, breakers, connected loads, and any visible damage.

Appendix: quick reference

Daily startup

1. Battery ON.
2. PV ON.
3. Grid/input/generator breaker ON if approved and being used.
4. Load breakers ON last.

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5. Add loads one at a time.

Daily shutdown

1. Turn OFF or unplug loads.
2. Set inverter to Standby.
3. Load breaker OFF.
4. Grid/input/generator breaker OFF.
5. PV disconnect OFF.
6. Battery breaker OFF.
7. Wait for LEDs to go off.

Selected EG4 FlexBOSS21 ratings

Rating	Value
Nominal AC output voltage	120/240 VAC or 120/208 VAC, depending on configuration
Maximum continuous output	66.7 A / 16 kW with PV and grid; 50 A / 12 kW battery only
Maximum grid pass-through	90 A
Battery nominal voltage	51.2 VDC
Battery operating range	40-60 VDC
PV maximum utilized solar power	21 kW
PV maximum DC input voltage	600 VDC
Operating temperature range	-13 degrees F to 140 degrees F
Enclosure rating	NEMA 4X

Selected ratings are from the EG4 FlexBOSS21 Hybrid Inverter User Manual v1.3.5 and EG4's FlexBOSS21 product page.[11][12]

Owner acknowledgement

I have received this owner's guide and understand that the trailer contains high-voltage/high-current electrical equipment. I agree to follow the startup, shutdown, emergency shutdown, load management, and maintenance instructions provided with the unit.

Customer signature: _____ Date: _____

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Native Solar Products representative: _____ Date: _____