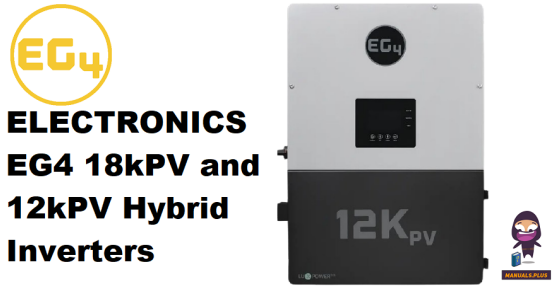

EG4 ELECTRONICS EG4 18kPV and 12kPV Hybrid Inverters Instructions

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EG4 ELECTRONICS EG4 18kPV and 12kPV Hybrid Inverters

PRODUCT INFORMATION

INTRO: UNDERSTANDING AC COUPLING IN EG4 HYBRID INVERTERS

AC Coupling allows a hybrid inverter to work in tandem with a grid-tied inverter, enabling the use of excess solar power even when the grid is down. However, setting it up properly can be tricky. This guide will walk you through how to configure the EG4 18kPV or 12kPV hybrid inverters for AC coupling, highlighting the settings you'll need to adjust, potential pitfalls, and how these inverters manage the process. AC coupling is one of the most common issues our tech team addresses, so use this guide as a reference to avoid headaches!

KEY SETTINGS FOR AC COUPLING

To ensure a smooth process, these settings must be configured correctly:

- **AC Couple Enable/Disable**: Make sure this is set to "Enabled." AC couple won't function if disabled.
- **AC Couple Start Charge SOC/Voltage**: Set to 98% SOC(54V). This is the point at which the hybrid inverter begins charging from the AC-coupled source. The reason we set this to 98% is so that we are always using the solar production from the AC coupled system.
- **AC Couple End Charge SOC/Voltage**: Set to 100% SOC(56V), which dictates when the inverter stops charging.
- **Export Enable/Disable**: Set this to "Enabled." Disabling this setting prevents power export, which will prevent AC coupling from operating.
- **Export Amount**: Set a minimum of 1kW to allow sufficient power flow. Without meeting this threshold, the system may not export power efficiently. When AC coupling, the EG4 inverter does not dictate the amount of power coming from your AC coupled inverter(s).\ It is necessary for the power to have somewhere to go when batteries are charged, and loads are satisfied.

SETTINGS THAT INTERFERE WITH AC COUPLING

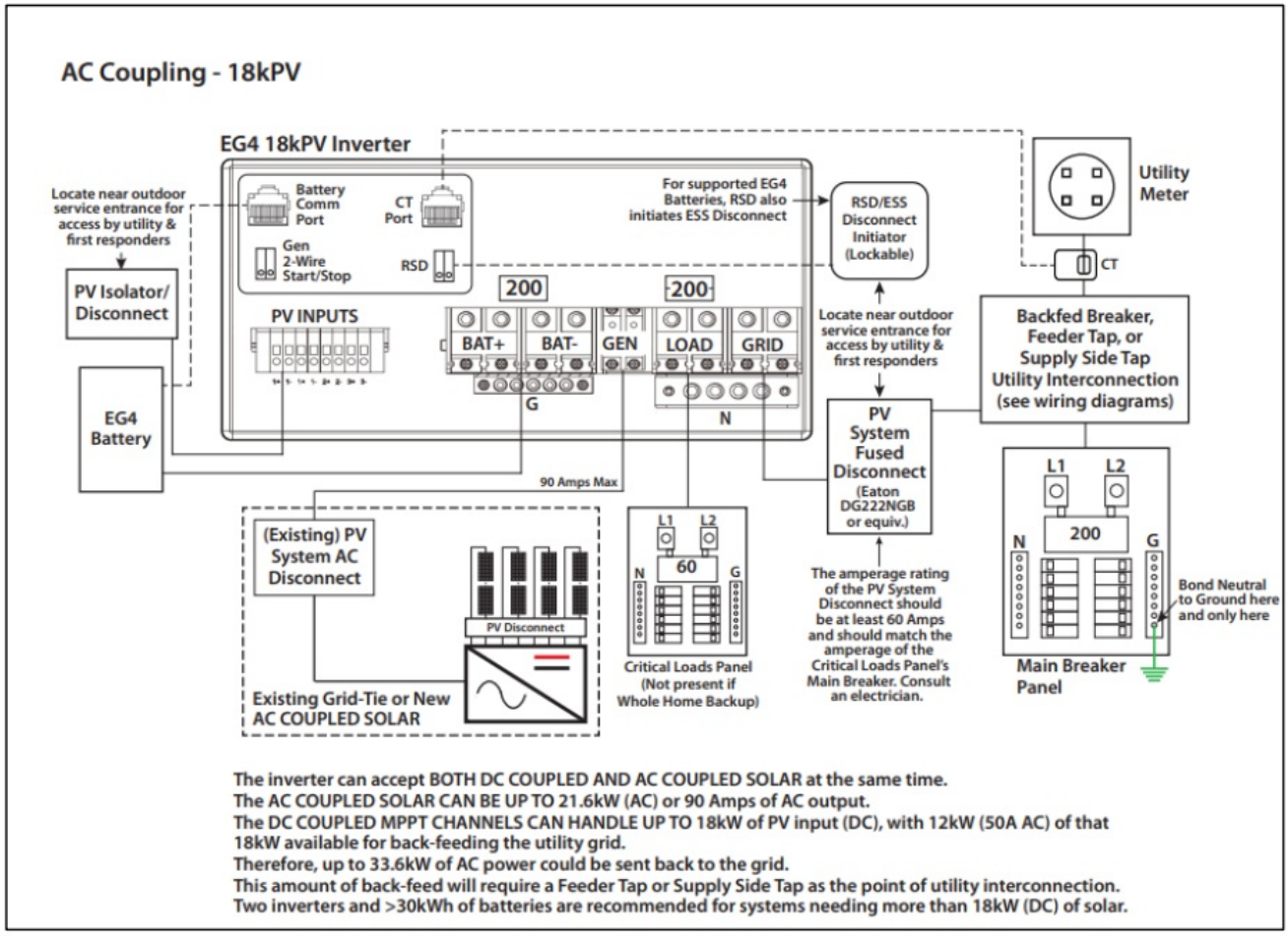
Certain settings can disrupt the AC Coupling process. Make sure these are configured correctly:

- **Fast Zero Export**: If active, it prevents the inverter from functioning in AC Coupled mode. Ensure it is disabled for proper operation.
- **Peak Shaving**: This function is incompatible with AC coupling. If you attempt to use both simultaneously, AC coupling will not work.
- **Off-Grid Mode**: Like peak shaving, off-grid mode will prevent AC coupling from working. They are mutually exclusive functions.

INSTALLATION CONSIDERATIONS

Physical installation plays a critical role in ensuring successful AC coupling. Here's what you need to know:

- Connect the output of your grid-tied inverter directly to the Gen Port of the EG4 hybrid inverter (18kPV, 12kPV). This creates a pathway for power to flow between the two inverters.



- Be sure to follow these steps to avoid configuration errors or wiring issues, which can lead to poor or improper system performance.

HOW AC COUPLING WORKS

HOW AC COUPLING WORKS WITH EG4 INVERTERS

Once set up, AC coupling relies on the hybrid inverter mimicking grid conditions. Here's how the process works:

- **Mimicking the Grid**: The hybrid inverter applies a 240V reference signal to the Gen Port, which “tricks,” the grid-tied inverter into thinking the grid is life. In other words, the hybrid inverter acts as the grid from the grid-tied inverter perspective.
- **Power Flow**: When the AC couple start trigger is met (SOC at 98% or voltage at 54V), the grid-tied inverter begins pushing power through the hybrid inverter.
- **Primary Power Source**: As soon as AC coupling is engaged, the grid-tied inverter becomes the primary power source for the system.

IMPORTANT CERTIFICATIONS

For a grid-tied inverter to be AC coupled with an EG4 hybrid inverter, it must meet the following certifications:

- UL 1741
- IEEE 1547

If the inverter does not meet these certifications, it will not AC couple with EG4 inverters.

GRID-TIED INVERTERS: BRIEF OVERVIEW

A grid-tied inverter operates by exporting power once the grid (or a mimic of the grid) is available. In an AC-coupled system, it will automatically start exporting power once it senses the grid-like conditions created by the hybrid inverter. This means other hybrid inverters can also be AC coupled, provided they meet the necessary certification requirements.

POWER HANDLING CAPABILITIES

POWER HANDLING CAPABILITIES OF EG4 INVERTERS

Each inverter has its power-handling capabilities. Let’s break it down:

- **EG4 18kPV**: Accepts up to 90 Amps (21kW) from a generator, passing through all available power to loads. Make sure the load’s subpanel is sized correctly.
- **EG4 12kPV**: Handles up to 80 Amps (19kW) of generator powers, again passing through the available power to loads. Make sure the load’s subpanel is sized correctly. For detailed subpanel wiring and sizing, refer to section 6 of the 18kPV, and 12kPV manuals for diagrams and instructions.

CONCLUSION

AC coupling with the EG4 18kPV and 12kPV hybrid inverters offers powerful flexibility for solar setups, but only if the configuration is handled properly. By following the correct settings, understanding which features are compatible, and ensuring proper installation, seamless AC coupling is simple. Always verify your grid-tied inverter’s certifications, and don’t hesitate to reach out to our team for further support.

Documents / Resources

	**EG4 ELECTRONICS EG4 18kPV and 12kPV Hybrid Inverters** [pdf] Instructions 18kPV, 12kPV, EG4 18kPV and 12kPV Hybrid Inverters, EG4, 18kPV and 12kPV Hybrid Inverters, 12kPV Hybrid Inverters, Hybrid Inverters, Inverters

References

- **User Manual**