Date: 11/03/2023

Technical Note: Neutral Conductor Wiring for the Solis S6 Hybrid Inverter

Critical Best Wiring Practices to Avoid Voltage Imbalance

Background: Solis S6 hybrid inverters have two sets of AC power outputs. One set goes from the inverter "Grid" L1/L2 ports to a circuit breaker in the main service panel that is on the neutral bus bar of the main service panel to the inverter "Grid-N" port. The second set of AC conductors is for the backup side of the system. The "Backup" L1/L2 conductors go from the inverter backup ports to the lugs of a backup loads subpanel. A neutral conductor must be connected from the neutral bus bar of the backup loads subpanel to the neutral connector bus bar located inside the inverter. A neutral conductor must also be connected from the neutral bus bar in the main service panel to the neutral connector bus bar inside the inverter.

There can be unintended consequences if the neutral conductors are not connected in this manner. When the AC Bypass switch of the inverter is switched from the inverter position to the "Bypass" position, the neutral from the grid is not carried over through the switch. Therefore, if the neutrals are not connected as instructed in paragraph 1 above, the backup loads subpanel will be isolated from the grid neutral with the bypass switch set to the "Bypass" position. The "Bypass" position will only be used when the inverter has an alarm or or fault that causes it to shut down. If the loads are allowed to operate without a neutral connected, the two phases will become unbalanced. What should be 120VAC between each of the phases and neutral can become different voltage values between the phase and neutral (example: 30VL1-N and 210V L2-N). Voltage imbalances on the phases can lead to damage to home loads that are connected those same phases. Loads plugged into receptacles require 20V and are not designed to withstand much higher voltages.

The installation wiring should match the Figure 1 and Figure 2 diagram on the next page to ensure proper and safer system operation. It is essential to connect the neutral according to the diagrams. Following the diagrams ensures that the home loads are never left without a neutral regardless of the AC bypass switch position. If you have any questions or comments, email usservice@solisinverters.com or cal the support team at (866)438-8408.

Warranty Note: Installations that fail to comply with the wiring method shown in Figure 1 will void the Solis US warranty and any damage caused by improper wiring will not be covered.

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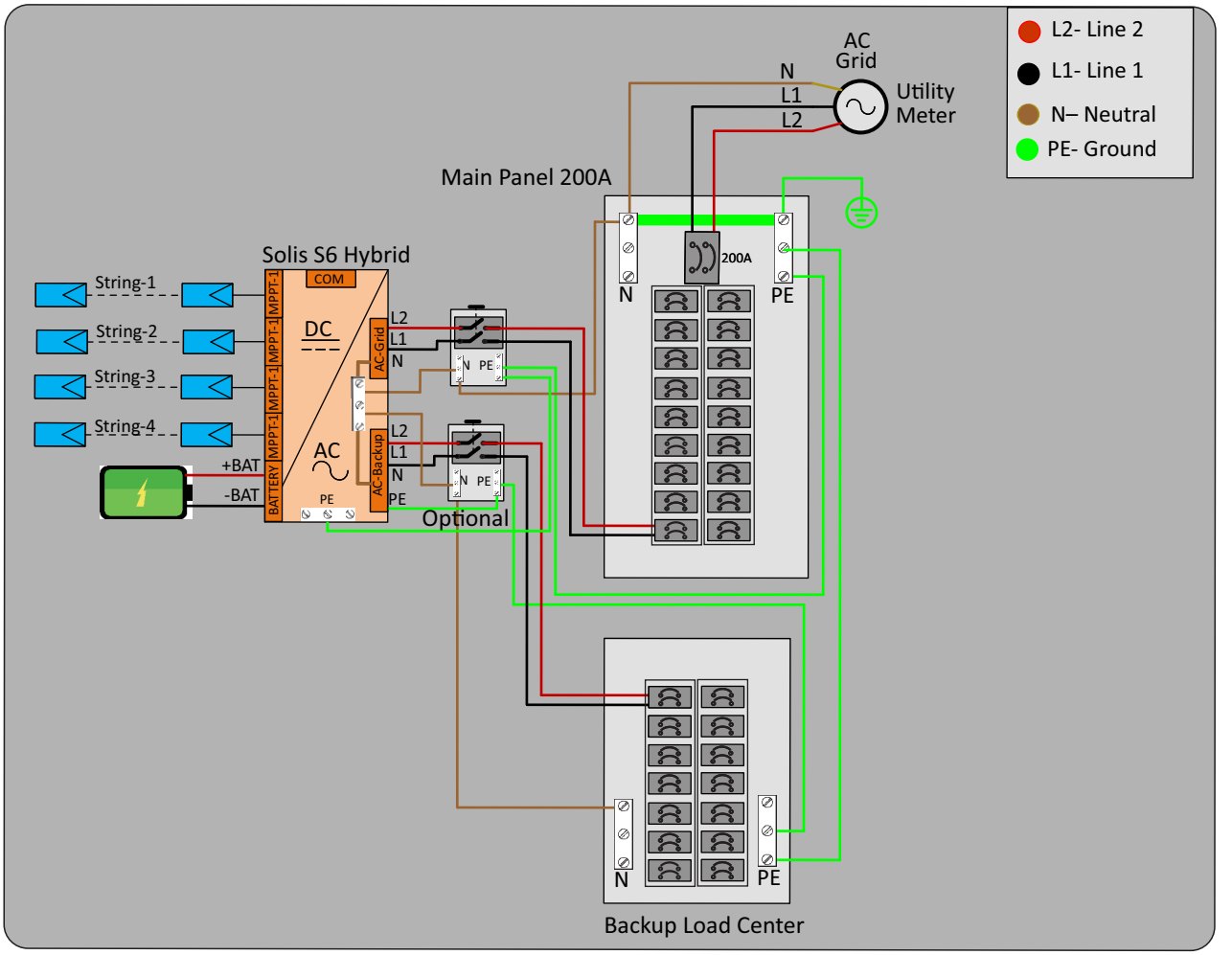

Figure 1

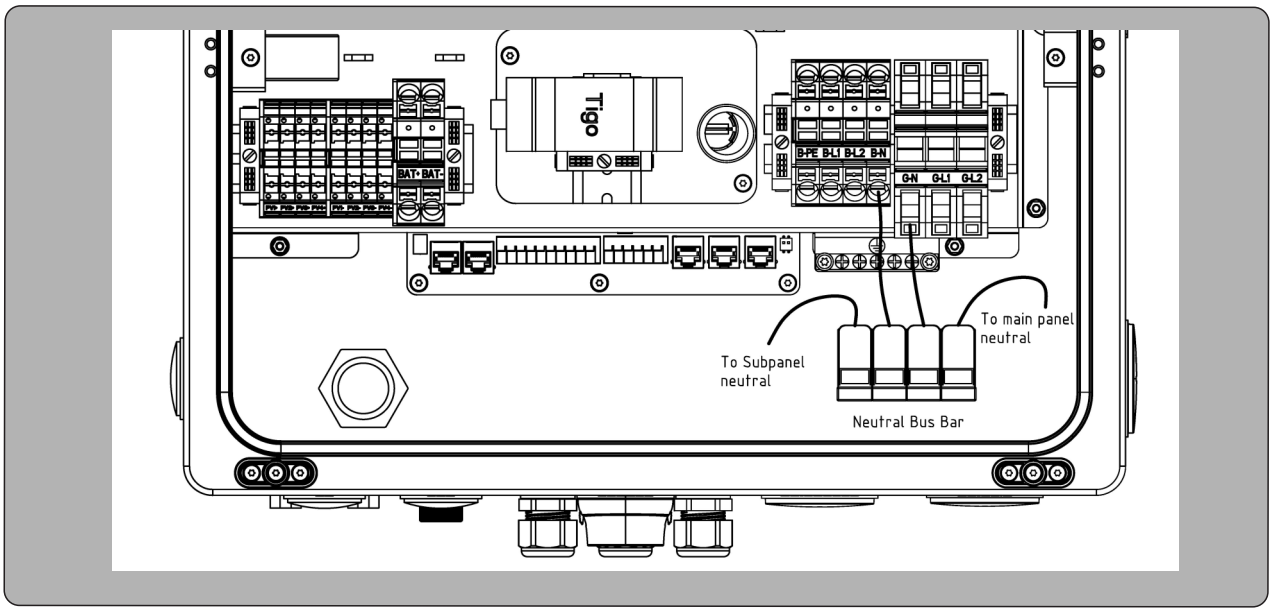

Figure 2