Using PylonTech Lithium Battery Packs with the Steca Solarix PLI 5000-48 Inverter Charger

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Recommended Steca Solarix PLI 5000-48 setup for the PylonTech US2000B, US2000Bplus, US3000B or Phantom-S Li-Ion battery models

Two PylonTech US2000Bplus batteries stacked
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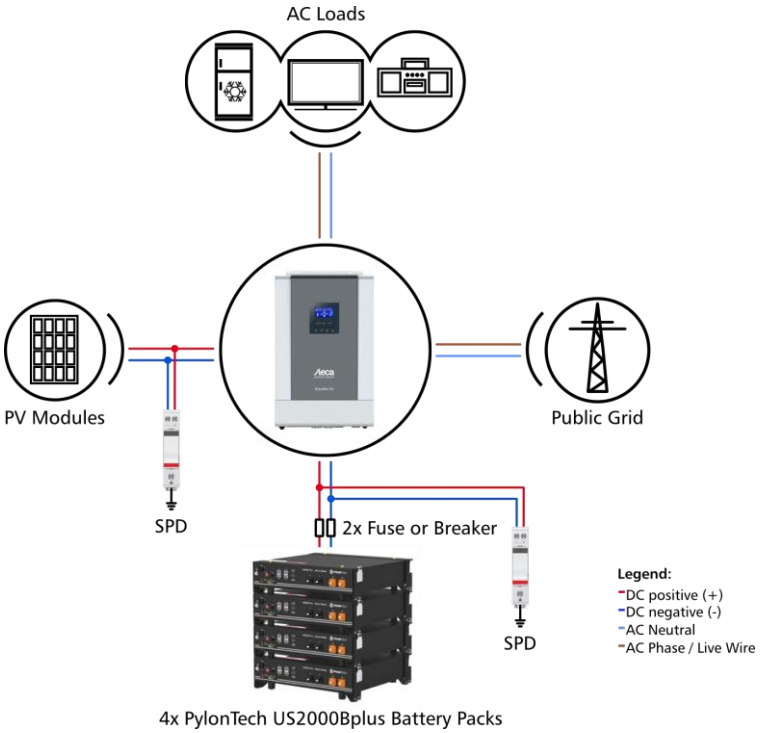
The following setup and settings have been selected through co-operation between Steca Elektronik GmbH and Pylon Technologies Co., Ltd. (PylonTech). They represent recommended values for cyclical applications as are typical in many solar PV applications with a depth of discharge (DOD) of approximately 80%. This recommendation is applicable to the ***PylonTech US2000B, US2000Bplus, US3000B and Phantom-S*** *battery models. We recommend using at least 4 pcs. of the US2000B / US2000Bplus / Phantom-S or 3 pcs. of the US3000B battery packs in parallel to reliably sustain the 5 kW full power of one Solarix PLI, without risking an over-current situation on the batteries. Install one fuse or circuit breaker in each the positive and negative cable between the battery bank and Solarix PLI with a rating of at least 150 Adc (slow). Additionally, it is recommended to use a surge protector (SPD) on the battery terminals that protects from voltages above 60 to 65 Vdc (example: Citel DS230S-48DC or similar), as well as on the PV side (Citel DS240S-110DC or similar). If using more than 4 battery packs (or 3 for the US3000B), make sure to use two battery cable pairs in parallel between the battery and the Solarix PLIs, each with their own fuses.*

Make sure to always follow the requirements and guidelines from the battery manufacturer and verify the settings with the data sheet of your batteries before applying them. Please contact your retailer in case of uncertainty. Read the Steca Solarix PLI and battery manuals before applying these settings. Follow your local regulations.

Installation Overview



4x PylonTech US2000Bplus Battery Packs

Please note that the overview above does not include AC breakers, AC surge protectors (SPD), residual current devices (RCD), earth / ground cables, or other safety equipment that may be required in the country of installation. Ensure that the system is installed by a professional according to national electrical safety standards.

Steca Solarix PLI Settings

The following settings refer to the Steca Solarix PLI 5000-48 inverter / charger, connected to an array of PV modules and the aforementioned PylonTech 48 V batteries. Please refer to the Solarix PLI manual for further explanation on the mentioned setting programs:

Steca Solarix PLI 5000-48

- Maximum charging current:
    - Program 02 → set to a value equal to or lower than number of used US2000B / US2000Bplus / Phantom-S battery packs x 25 A; or the number of used US3000B battery packs x 37 A.

      Example if using 4 pcs. of US2000Bplus: 4 x 25 A = 100 A. Therefore the maximum charging current must be set to 100 A or lower.
- Battery type:
    - Program 05 → User-defined (USE)
- Switch to AC input set-point (relevant when using "SBU" or "Solar first" modes in program 01):
    - Program 12 → 48 V
- Switch back to solar / battery set-point (relevant when using "SBU" or "Solar first" modes in program 01):
    - Program 13 → 51 V
- Charger source priority (this is assuming you wish to utilise as much solar power as possible, if you do not, then choose another setting):
    - Program 16 → Solar first (CSO)
    - Program 11 (maximum AC input charging current) → 2A

      The reason "Solar first" is recommended here as opposed to "Only solar", is that when the battery is in a low-voltage state and the Solarix PLI switches to AC input / grid operation, the Solarix PLI inverter's self-consumption of approximately 50 W is still provided by the battery. To compensate for this (and thus prevent the battery voltage from dropping too low if there are prolonged periods without sunshine), it is recommended to charge the battery very slightly (less than 100 W when setting program 11 to 2A as recommended), when the Solarix PLI is in AC input / grid mode. This ensures that the battery will not be gradually depleted when the grid is available and there is no sunshine. Choosing a higher value than 2A would reduce the energy cost-savings potential from this system.

- Boost charging voltage:
    - Program 26 → 53.2 V
- Float charging voltage:
    - Program 27 → 53.1 V
- Low DC / battery cut-off voltage:
    - Program 29 → 47.5 V
- Boost charging time:
    - Program 32 → 60 minutes
- Battery equalisation:
    - Program 33 → Battery equalisation disable (EdS)

Note: if there is a critical condition detected in the battery, the PylonTech battery will shut down for safety reasons. To re-start the system, the battery must be started manually. Only once the battery has started up can the Solarix PLI 5000-48 power up again.