Hub-4 three phase

Soon we expect to release CCGX v1.32, which includes the addition of three phase support for Hub-4.

To keep the text short, it refers to Multis. Also Quattros can be used. Both are bi-directional inverter/chargers.

- The Multis need to be configured as a three-phase system. Use VE.Bus Quick Configure or VE.Bus System Configurator for this.
- Update all Multis to firmware 405 or newer
- Install the Hub4 Assistant in all units: all the phase-masters but also all slaves (if any)
- Three phase loads: it is possible to connect three-phase loads to the AC out of the Multis, also called the UPS-output in a Hub-4 system. Those loads will be powered from the battery during a power failure.

Power regulation details - phase compensation setting

In a three-phase Hub-4 system, there is at least one Multi installed on each phase. We recommend setting the system to regulate the total power of the three phases to zero. This is called phase-compensation, and is enabled by default. When phase-compensation is disabled, each separate phase is regulated to 0.

With phase-compensation enabled, all the inverter/chargers will either be charging or discharging: the system prevents to charge the battery on one phase, and discharge it on the other phase.

When the system as a whole produces power (PV power exceeds consumption), the Multis on the phases with a net power production will be set to charge the battery. Multis on phases with a net power usage, Ppv < Pload, will be on idle.

When the system as a whole consumes power (Consumption exceeds PV production), the Multis on the phases with a net power usage will discharge the battery to compensate for the shortage. Multis on phases with a net power production will be on idle.

Disabling phase compensation

In a hub-4 system it is still possible to balance the grid power of each phase to 0W. Disable phase compensation. This would however cause significant losses, because power will flow from one phase to another through the DC connections. Causing losses when converting from AC to DC on one phase and then from DC to AC and the other phase.

Phase compensation, balancing the total grid power to 0 is therefore more efficient. It avoids the AC-DC roundtrip losses.

Maximum charge current limitation

In a multi-phase system, the charge current is configured per phase. There is not a total charge current which the system adheres too. This means that, for example when there is a relatively small battery bank, and a huge over production of PV on L1, and not on the other phases, only part of that over production on L1 will be used to charge the battery.