SUNPOWER®

Technical Notification

Title : SunPower Equinox™ Type E and Type G AC Modules and Sonnen Storage Compatibility, 533812

Date : May 28, 2019

Authors : Residential Systems Integration Team

Application : All Equinox Type E or Type G AC module systems installed with Sonnen storage battery systems

Overview

When SunPower AC modules are installed with Sonnen storage, installers must adhere to the guidelines in this Technical Notification, which reflect intensive testing of the combined products.

SunPower AC modules installed with Sonnen storage are **now qualified for use in non-Hawaii (mainland) installations; AND in Hawaii *in non-zero export installations*.**

This notification includes:

- Qualified electrical architecture use cases
- Maximum number of SunPower AC modules to connect to Sonnen storage
- Location of PVS6 for continued reliable AC module communication
- Warning that consumption monitoring using PVS6 and current transformers (CTs) is not possible with Sonnen storage

Important! **SunPower Technical Support scope does not yet include Sonnen storage.**

SunPower Dealers are responsible for all integration and performance of systems that incorporate Sonnen storage and SunPower Equinox.
For any sales, design, or installation support questions not covered in this notification, please contact Sonnen Technical Support:

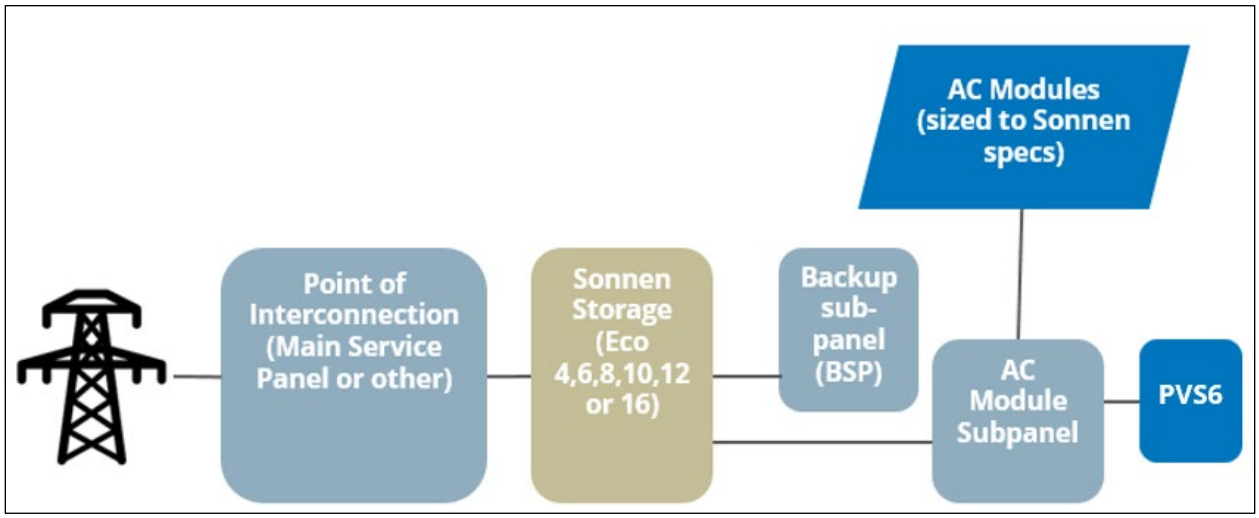
1-818-824-6363
design@sonnen-batterie.com

For post-installation Sonnen support: **service@sonnen-batterie.com**

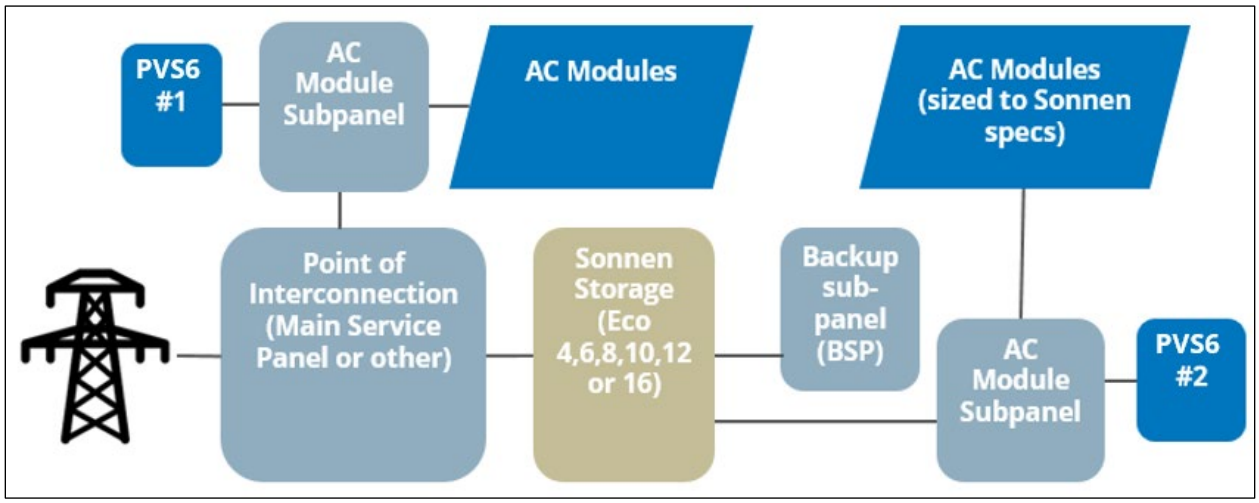
Qualified Electrical Architectures

SunPower has evaluated and approves the following two electrical architecture scenarios:

Scenario 1 – SunPower AC modules connected to backup subpanel only:



Scenario 2 – SunPower AC module subarrays connected to backup subpanel and line side of storage:



Maximum Number of SunPower AC Modules

Sonnen storage includes a bidirectional inverter, and its charging rate determines the maximum quantity of SunPower AC modules that can be connected to Sonnen storage. The following calculations are based on Sonnen specifications and the AC continuous output power of the SunPower AC module. *All system design elements must be evaluated by and completed by a professional solar designer, and must comply with AHJ and utility standards and requirements.*

Sonnen Storage Model	Sonnen Inverter Type / Power Rating	Maximum Number of AC Modules / Array Rating	Compatible SunPower AC Modules
Eco 4 **Eco 6** **Eco 8**	Outback Radian GS4048A / 4 kW	Type E 12 / 3.84 kW AC	All SunPower Type E and Type G AC modules
		Type G 11 / 3.85 kW AC	
Eco 10 **Eco 12** **Eco 16**	Outback Radian GS8048A / 8 kW	Type E 24 / 7.68 kW AC	
		Type G 22 / 7.7 kW AC	

Example Calculation Scenario

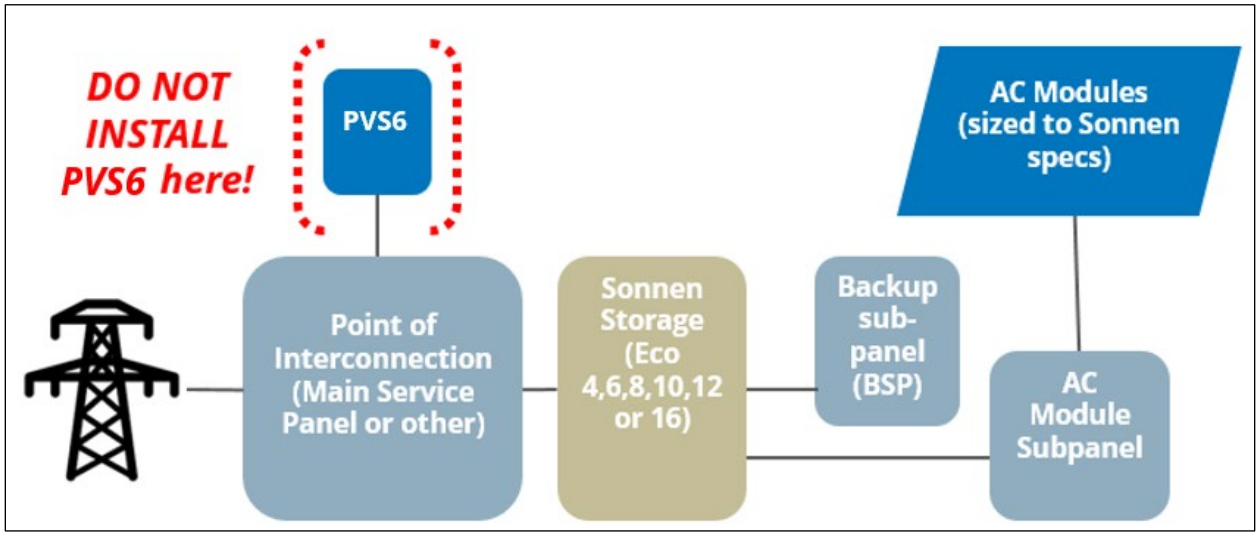
Q. How many SunPower X22-370-E-AC modules can I install if I'm using a Sonnen Eco 10?

A. AC continuous output power of X22-370-E-AC module = 320 W
AC continuous output power of Eco 10 (Outback Radian GS8048A) = 8000 W
(**24) X22-370-E-AC modules = 7.68 kW AC**
(2) AC module circuits @ 20 A each = 40 A total backfeed

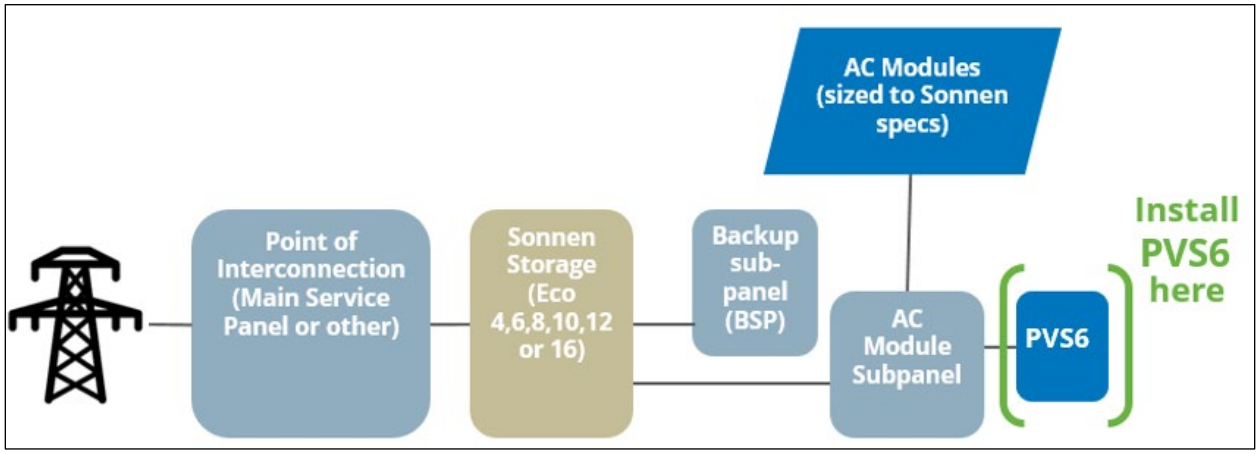
PVS6 Location

SunPower AC modules rely on robust communication to the PVS6 using power line communication on the AC module circuits. The reliability of this communication is a direct result of the physical proximity of the AC module circuit breakers to the PVS6 circuit breaker. **When any additional electrical equipment—such as a storage battery—is installed between the SunPower AC modules and the PVS6, the ability of the AC modules to communicate with the PVS6 is compromised.**

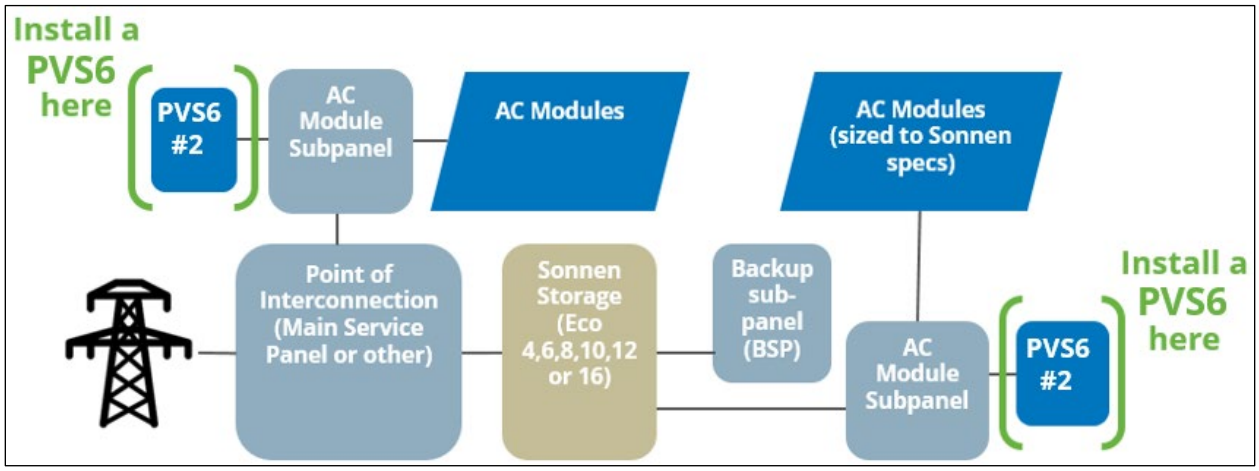
In the following example, communication between the PVS6 and the AC modules is compromised because of the storage equipment installed between the SunPower components:



However, in the next example, communication remains robust because the PVS6 and the AC modules are co-located upstream of storage equipment:



If you are splitting the AC module array, use multiple PVS6 units co-located with AC module subarrays:



SunPower Consumption Monitoring not possible with Sonnen Storage

Consumption monitoring through SunPower EnergyLink™ Home relies on the home's consumption being measured through current transformers (CTs) that are installed in a location that allows the PVS6 to measure the total home energy consumption. However, when a storage battery is introduced into the home electrical system, a portion of the home consumption is typically supplied by the storage battery. **Because home loads are now supplied by the utility grid and the battery, accurate consumption monitoring through the PVS6 is not possible.**

Warning!

Do not install PVS6 consumption CTs in SunPower Equinox systems that incorporate Sonnen storage. Consumption data will not be correct and will result in an unacceptable monitoring experience for the customer.

If you have any questions please contact your PSR, RSM, or Technical Support at **1.855.977.7867.**

Thank you for helping us change the way our world is powered!