

# **Application Note – Purchasing your first Kodak system.**

**SegenSolar** 



# Purchasing your first Kodak system.

Its essential to consider the following steps to ensure a successful design and installation of your new system. Mistakes in this regard can lead to unnecessary expense !

## Battery design – The most important aspect.

### Battery bank must be able to supply the expected loads

- If the battery bank is too small, it will cause nuisance tripping and possibly component damage.

### Battery bank needs to be able to accommodate PV array wattage

- If the battery is too small for the PV array, sudden load changes could cause voltage spikes on the battery bank causing trips.
- Don't rely on the PV array or grid to "support" a bank that is too small, these sources may not be reliable.

Do not rely on the battery BMS system to protect against overloads. Its better for the inverter or AC protection to trip first. It's bad for the system under load to suddenly have a battery disconnect as it could lead to damage.

## PV design

There is a vast selection of panels available these days. The most important aspect to watch out for is your PV voltage.

- A common mistake is to assume the panel always has the same open circuit voltage.
- The voltage written on the panel is only at that value for 25 degrees Celsius, this is called STC for standard test conditions.
- In winter its colder and the open circuit voltage will increase, always take the coldest temperature into account when design a PV array.
- This is a common point of failure, with a system working fine in summer but the MPPT failing in winter so be careful!

## Overload protection

- There is always going to be a chance for overloads. Design the AC protection to accommodate this rather than relying on the inverter/batteries. Its much easier and safer to reset a breaker than restarting a whole PV system.
- While batteries and inverters have built in protection, there are limitations.
- Breakers have tripping curves, for instance a 5A breaker won't immediately trip at 5A, please consult the breaker documentation for the desired characteristics that will best protect your inverter



## AC and DC surge protection

- Always install adequate AC and DC protection depending on your area. If you have an inverter failure and there is no protection, then this would not be under warranty if evidence is found of surge damage.

## Before going to site

- There is a vast selection of panels available these days. The most important aspect to watch out for is your PV voltage.
- Ensure that the installer understands how to install and commission the system before going to site. This will avoid many potential challenges.
- Always consult the documentation before installing.
- There are many additional guides on the Segen portal to assist with specific configurations these can be found under the product documentation tab.

## Warranty

In the rare event of a failure, as part of the warranty conditions for Kodak proof must be supplied that the installation was done correctly.

Take photos of the installation, including the installed protection, without this it will not be possible to proceed with a warranty claim.

## Commissioning

- Never make connections with live cables – this can cause arcing and will void warranty
- Never turn on grid or PV before first setting up the correct battery settings and ensuring BMS communication is working.

## Ensuring your design is always correct

Using [Kitbuilder](#) will always ensure you get a design that works. Kit builder automatically takes all of the above mentioned points into account.

