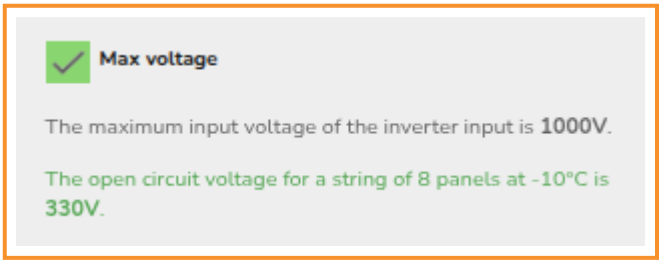
The max voltage calculated in the inverter task doesn't match the Voc from the panel datasheet, why is this?

The max voltage factors in both the **open circuit voltage** (V_{oc}) and the **temperature coefficient** (ΔV_{oc}/°C) of the panel. The value on the datasheet is measured at standard test conditions (STC) but the actual V_{oc} of the panels will depend on the ambient temperature. As the temperature decreases, the V_{oc} increases, so it is important to factor this into sizing the inverter.

In Easy PV, we do a calculation at -10°C, since the voltage increases at lower temperatures, the max voltage given in Easy PV will be **higher** than the number of panels multiplied by the open circuit voltage of the panels.

Example calculation



In the above case, the V_{oc} is 37.45V and the temperature coefficient is -0.276%. This means for every increase in °C, the V_{oc} decreases by 0.276%.

For standard test conditions (STC), the panel temperature is 25°C so the change in temperature to -10°C is 35°C, meaning we have

$$37.45 * (1 + (|-0.00276| * 35)) * 8 = 328.5 \text{ V}$$

Easy PV does a slightly more conservative calculation:

$$37.45 * (1 - (-0.00276))^{35} * 8 = 329.94 \text{ V}$$

where in each case 0.276% is divided by 100 to convert it 0.00276 per °C. This is then rounded to give 330V.

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