Photovoltaic Inverter Guide

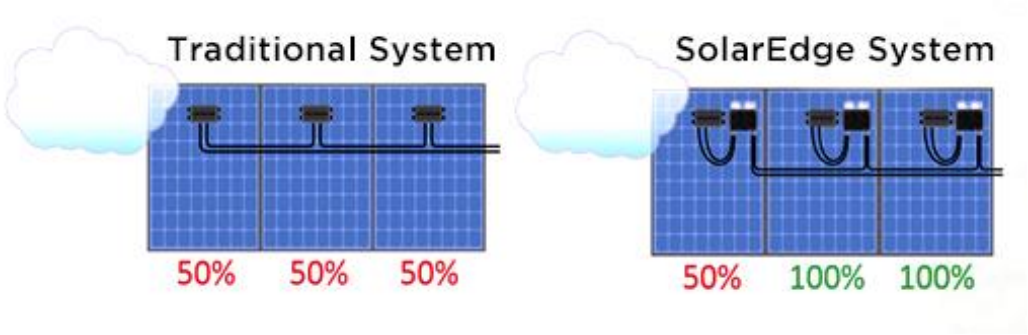
AES Solar
Established 1979

All grid transmission, mains and the electricity supplied to your property is of the Alternating Current (AC) type. However, photovoltaic (PV) panels generate Direct Current (DC) electricity. Therefore, it is necessary to convert the DC power generated from solar panels into AC so that it can be used by your appliances around the home. This task is carried out by your PV inverter. There are different types of Inverter and this guide aims to help you decide which is best for you.

Premium Inverters

solaredge

SolarEdge inverters provide a smarter solution for your PV system. As part of our premium range they are efficient, compact and lightweight while allowing greater design flexibility and ease of system performance checks. Their power optimiser technology is an innovative solution as it allows for individual panel monitoring and optimal power production.



In conventional PV String inverters, the performance of each individual panel is impacted by all of the other panels which are connected together in the same 'string'. These inverters operate in a similar fashion to older Christmas tree lights so if one panel is underperforming (i.e. affected by shading, soiling etc.) then the performance of all other panels in the same string will be impeded. This also affects the design of your array as each string needs to have the same pitch and orientation so that the panels are getting the same irradiance and do not impede each other.

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SolarEdge inverters are not constrained in this manner because of their power optimisers. A power optimiser is connected to each panel in the array which allows each panel to perform independently from one another and produce more energy. Another benefit of each panel having its own power optimiser is that individual panel performance information is available via SolarEdge's free online monitoring software which makes it easier to troubleshoot issues and make warranty claims.

The design of the SolarEdge inverter gives you the option of expanding your panel array later on and it is simple to incorporate a DC battery storage system and/or home energy management system in the future. SolarEdge inverters also have a very high safety rating, as it is designed to reduce the PV arrays DC voltage in the case of an AC or inverter shutdown, ensuring your property is always fully protected.

The warranties provided by SolarEdge are among some of the longest in the industry, with the power optimisers having a 25-year warranty and the inverters having a 12-year warranty.

In Summary SolarEdge:

- Optimises energy production of each panel by minimising shading losses.
- Provides a comprehensive online remote monitoring portal available from smartphones, Tablets & Web browsers.
- Comes with 25-year optimiser warranty & 12-year inverter warranty as standard.
- Allows for a more flexible design as each panel in your array can have different pitch and orientation.
- Manufactures reliable high efficiency inverters.
- Provides you with more utility as well as addons for future upgrades etc.

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Standard Inverters

Solis are part of our standard range of inverters. They are a practical and functional PV string inverter that provides your property with power from your solar PV panels at a competitive price.

Whilst Solis do not have power optimisers, they do use Maximum Power Point Trackers (MPPTs) for their inverters. This does some of the same functions as a power optimiser but only maximises power output across the whole string. A standard domestic Solis inverter can have up to two MPPTs which would allow you to install a PV Array on two different roof pitches/elevations/orientations without impacting generation.

In locations where there is little shading present a Solis Inverter can be very competitive when compared against a premium alternative. If your panels are installed in an area which is not likely to be affected by shading or varying levels of light across the array, then the Solis inverters will perform more closely to a premium PV inverter in terms of energy provided by your PV array to your home.

It is difficult to increase the size of a PV array when using a Solis Inverter as they are typically sized to fit the existing PV array and are not as flexible with higher rated DC power than their rated AC output. In addition, it is more difficult to retrofit a DC type battery to an existing Solis Inverter system as the inverter would need to be replaced.

Solis inverters come with a standard 5-year warranty, meaning your device will be covered if it were to stop working or had any performance issues. This is upgradeable to a 20-year warranty for an extra cost which will allow you to rest assured that your system will be protected for years to come.

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In Summary Solis:

- Manufactures a competitively priced String PV Inverter.
- Provides Two MPPTs so two strings can be on different roof pitches/ elevations.
- Provides a very reliable alternative to premium options.
- Comes with a 5-year inverter warranty as standard.
- Ideal for locations without shading.

So What is Best for You?

There are numerous factors which will impact whether you decide to use an inverter from our standard or premium range and the decision is entirely up to you. However, we recommend that you consider the location and orientation of your array as well as what you are looking for from your PV system as a whole.

If you wish to maximise your energy production and effectively utilise your roof space, then the SolarEdge inverters are likely to be more beneficial to you. They cost more than the Solis inverter however they will optimise each of the panels in your array, allowing them to produce more electricity for your home. If your panels will have multiple orientations or are going to be shaded from nearby trees etc. you will maximise your electricity production using a SolarEdge Inverter. They also have exceptional warranties, to protect your investment and advanced monitoring capabilities and safety ratings.

If you are looking for an affordable yet reliable inverter and have little or no shading, then our standard range of inverters may be the better option for you. They do not have optimisers like the premium inverters, but if you are not concerned with panel shading or trying to use as much of your roof space as possible then our standard inverters would be more than adequate for your PV system.

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