

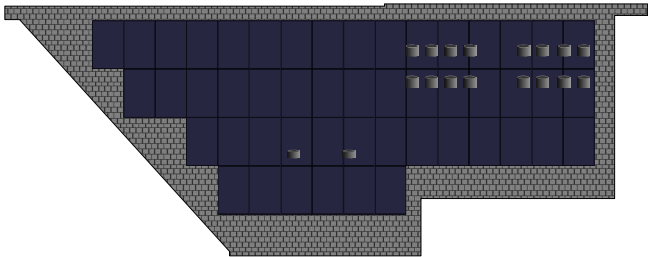
System Overview

Your system comprises **196 Trina Vertex S+ 430W Dual Glass N-Type (Clear Backsheet) solar panels** to collect sunlight and turn it into DC electricity.

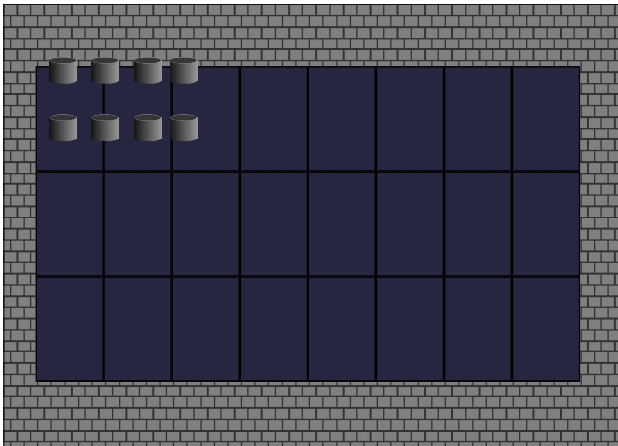
The panels will be connected to **1 Growatt 33 KTL3-X 3ph (3x MPPT) inverter and 1 Growatt 40 KTL3-X 3ph (4x MPPT) inverter**, which convert the DC electricity into mains (AC) electricity.

We include all the isolators, wiring and meters needed to connect the system safely to your electrical system. Your system will be installed and certified by our trained installation team.

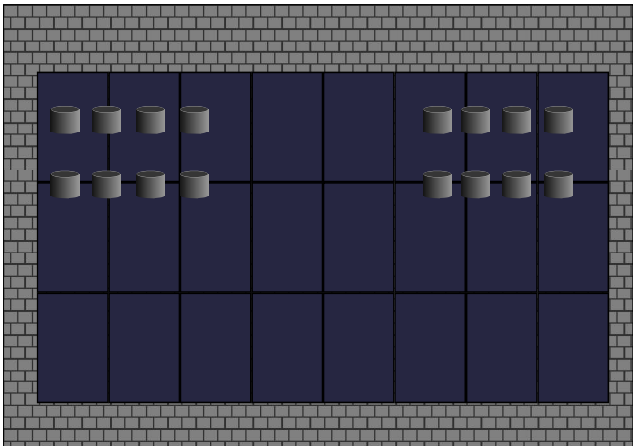
Roof South



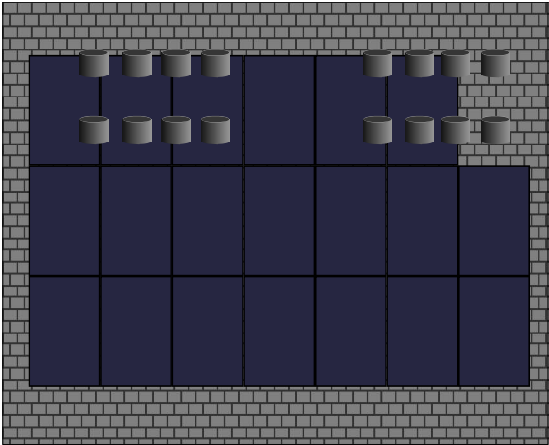
Roof South



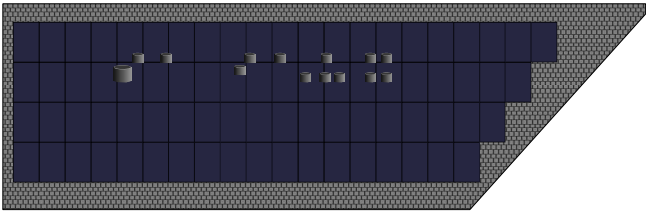
Roof South



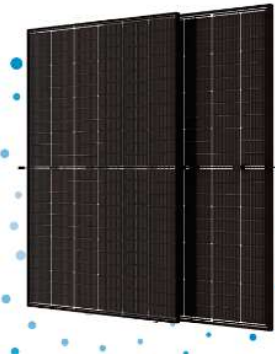
Roof South



Roof East



System components



Solar Panels: Trina Vertex S+ 430W Dual Glass N-Type (Clear Backsheet) x 196

The dual glass design of the Trina Vertex S+ offers high reliability in harsh conditions, better trapping light for high power output.

Model	TSM-NE09RC.05
Power	430 watts
Dimensions	1134 x 1762mm

Inverter



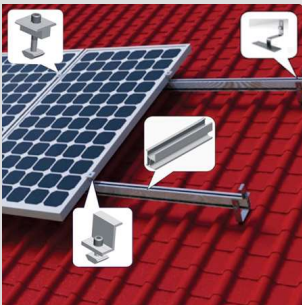
Growatt 33 KTL3-X 3ph (3x MPPT)

Some of the most powerful Growatt inverters, the KTL3 offer lightning and fire protection as standard along with inbuilt diagnostics.



Growatt 40 KTL3-X 3ph (4x MPPT)

Some of the most powerful Growatt inverters, the KTL3 offer lightning and fire protection as standard along with inbuilt diagnostics.



Mounting: Fastensol pitched roof mounting system

Fastensol are an excellent value, fully MCS accredited choice for pitched roof mounting systems, suitable for the majority of roof types.

Designed for	Natural Slate roofs
Colour	Black

System Performance

We have made an estimate of the annual energy generation of your system. This takes into account the following factors that affect the output of a solar array.

The location of the system

Sunlight is weaker near the poles than near the equator. We use data from a meteorological model of the intensity of sunlight over the course of the year in different locations all over the world.

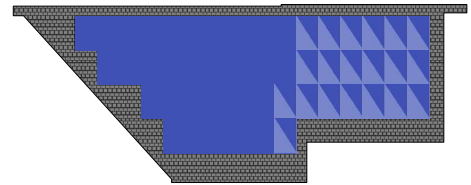
The orientation of the system

Solar panels that face south receive a little more sunlight than panels that face east or west. However, in diffuse light the orientation of the panels makes little difference, so the effect is less marked than many people imagine.

The degree of shading

If you have trees, neighbouring buildings or nearby high ground that will shade your PV array, the output of the system will be reduced. We have used a 'sunpath diagram' that estimates how often sunlight will be blocked from reaching the panels.

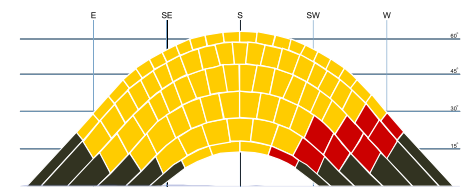
Roof diagrams



Stringing diagrams indicate which solar panels are connected to which inverter inputs.

Full sunpath and stringing diagrams for this system are given on the following page.

Sunpath diagrams



Sunpath diagrams indicate where the sky as seen from the solar array is blocked by neighbouring buildings, chimneys, trees, or other obstructions.

We expect your system to generate
64,138 kWh per year

Installation data

Installation capacity of PV system – kWp (stc)	84 kWp
Orientation of the PV system – degrees from South	See roof diagrams
Inclination of system (pitch) – degrees from horizontal	See roof diagrams
Postcode region	Zone 7E

Performance Calculations

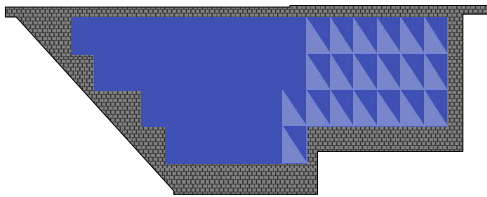
kWh/kWp (Kk)	See sunpath diagrams
Shade Factor (SF)	See sunpath diagrams
Estimated output (kWp x Kk x SF)	64138 kWh

Estimated PV self-consumption

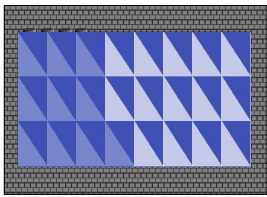
Assumed annual electricity consumption	200000kWh
Expected solar generation consumed in property	42014kWh

Important note: The performance of solar PV systems is impossible to predict with certainty due to the variability in the amount of sunlight from location to location and from year to year. This estimate is based upon a model that takes account of meteorological data at your location and makes an allowance for losses due to shading of the panels. This is a complex calculation however, and no model can be 100% accurate. It should not be considered a guarantee of performance. If shading is present on your system that will reduce its output to the factor stated. This factor was calculated using industry standard shading methodology and we believe that this will yield results within 10% of the actual energy estimate stated for most systems.

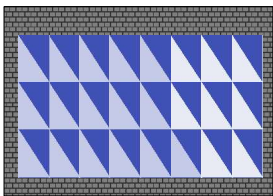
Roof diagrams



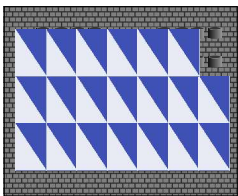
Roof South Orientation: 3° Pitch: 25°



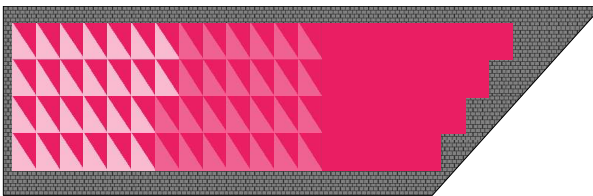
Roof South Orientation: 3° Pitch: 25°



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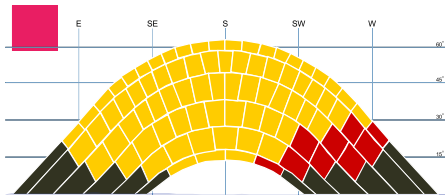


Roof South Orientation: 3° Pitch: 25°

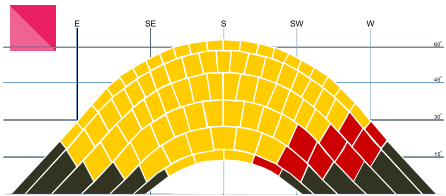


Roof East Orientation: -87° Pitch: 25°

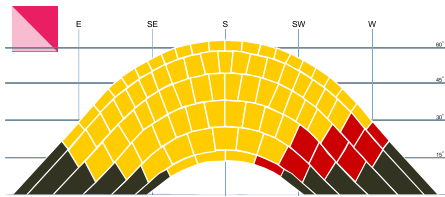
Sunpath diagrams



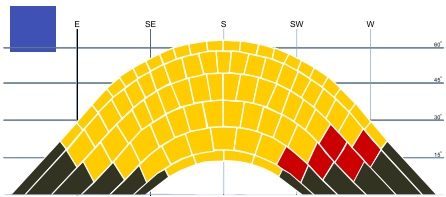
Shade factor: 0.91 Kk: 728



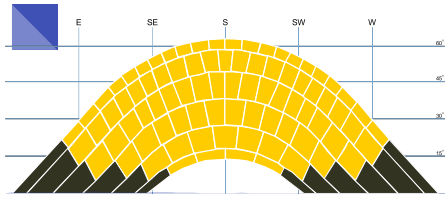
Shade factor: 0.91 Kk: 728



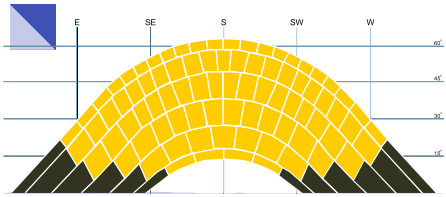
Shade factor: 0.91 Kk: 728



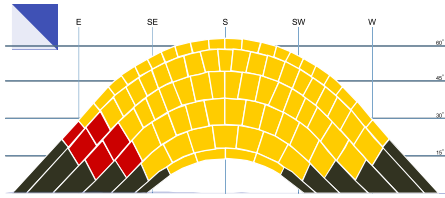
Shade factor: 0.95 Kk: 849



Shade factor: 1.00 Kk: 849



Shade factor: 1.00 Kk: 849



Shade factor: 0.94 Kk: 849

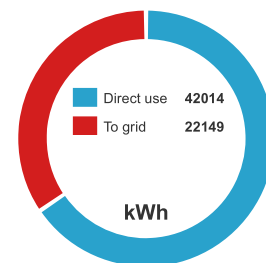
Your energy explained

In addition to the MCS calculation of system output we have run a more detailed model of your system to estimate how much of the electricity generated by the system you are likely to use yourself and how much will go to the grid.

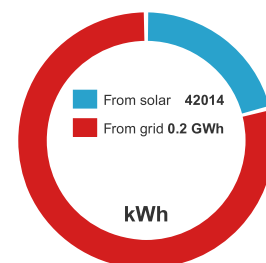
Where your electricity will come from in a typical year

Based on an electricity usage of 200,000 kWh per year, the graph below shows how much electricity used in the property is expected to come directly from the solar panels (blue) and how much is expected to be imported from the grid (red).

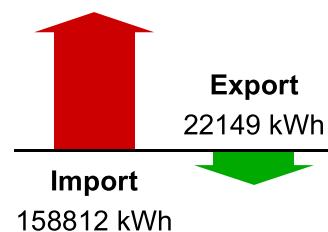
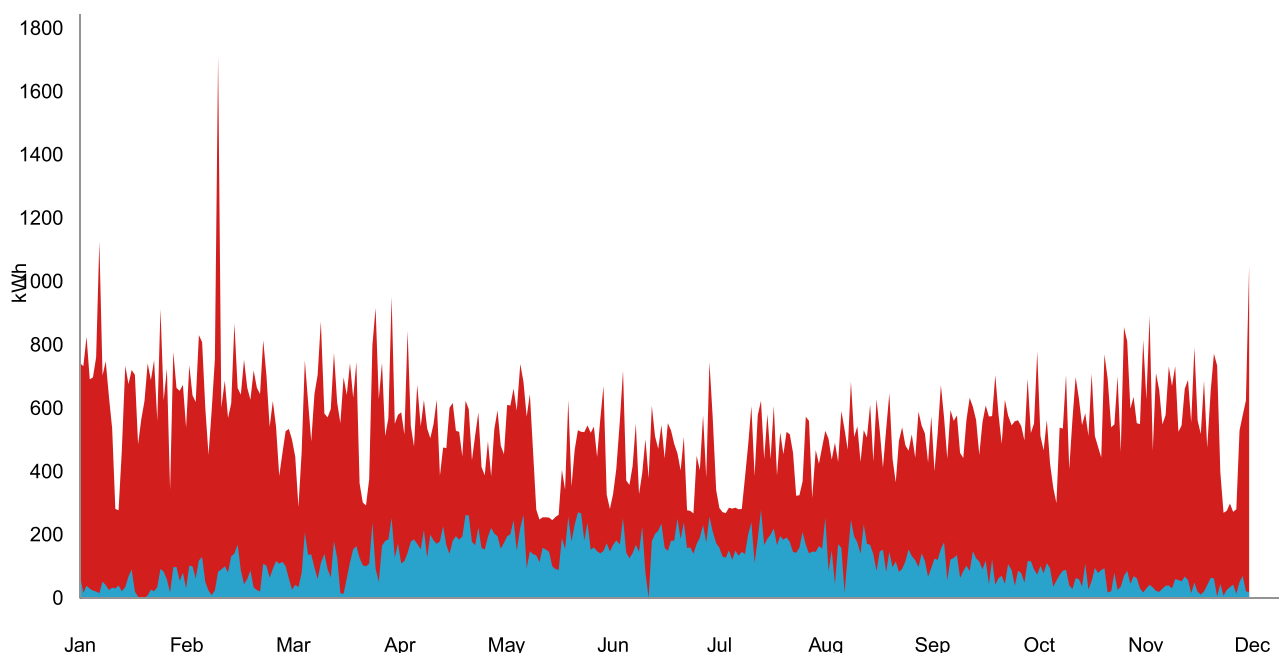
Annual Generation



Annual Consumption



Annual Import/Export



Environmental Benefits

Your new PV system will supply your property with clean, green electricity - and in sunny periods some will also be exported back to the grid.

Overall you'll be making a big contribution to reducing CO₂ not just by lowering the carbon intensity of your own electricity, but by putting low-carbon electricity back in the grid for others to use too.

Your current electricity supply produces

42,466 kg CO₂
each year

21% will be supplied by solar, saving

8,921 kg CO₂
each year

22,124 kWh will be exported, saving

4,698 kg CO₂
each year

Total savings

13,618 kg CO₂
each year

**Your yearly CO₂
reduction of 13,618
kg is equal to...**



**a car ride of 48,637
miles**



**CO₂ absorbed by 625
trees**

Disclaimer: We calculate and compare the likely annual CO₂ emissions for your home based on your generation and usage with the solar PV system detailed in this document versus estimates for a property like yours using energy from the grid. Your actual CO₂ emissions will depend on lots of factors, like how much energy your solar panels generate, how much of this energy you use directly and how much energy you continue to use from the grid. To calculate what these savings equate to in miles driven, we base this on the CO₂ emissions of an average sized diesel car as outlined in the UK government's 'Greenhouse gas reporting: conversion factors 2022' (<https://www.gov.uk/government/publications/greenhouse-gas-reporting-conversion-factors-2022>). To calculate what these savings equate to as the average amount of CO₂ absorbed by trees, we base this on a rate of 25kg per tree per year. Trees absorb anywhere between 10 and 40kg of CO₂ per year on average, depending on a whole host of factors including the species, location, planting density, and age.