Prepared by: Cavin Doyle
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For: Lee
None, Framsden

Quote #: 3958747
Valid until: 28th March 2024

Solar Energy System Proposal

Dear Lee,

Thank you for the opportunity to present your Solar Energy System Proposal.

Best Regards,
Cavin Doyle
Doyle Electrical Services Ltd

Recommended System Option

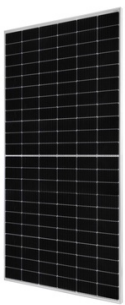
10.1 kW	£2,155	£22,891	£22,891
System Size	Estimated Annual Electricity Bill Savings	Total System Price	Net System Price

Your Solution

JAM 60S30 MR

10.100kW of Solar Power
20 x JAM66S30-505/MR
505 Watt panels
12 Year Product Warranty **& 25 Year** Linear Performance Warranty
7,903kWh per year

JA SOLAR



Inverter

SOLIS - Ningbo Ginlong Technologies
10.000 kW Total Inverter Rating
2 x S5-GR1P5K

Battery

Tesla
13.5 kWh Total Battery Storage
1 x Tesla Powerwall+

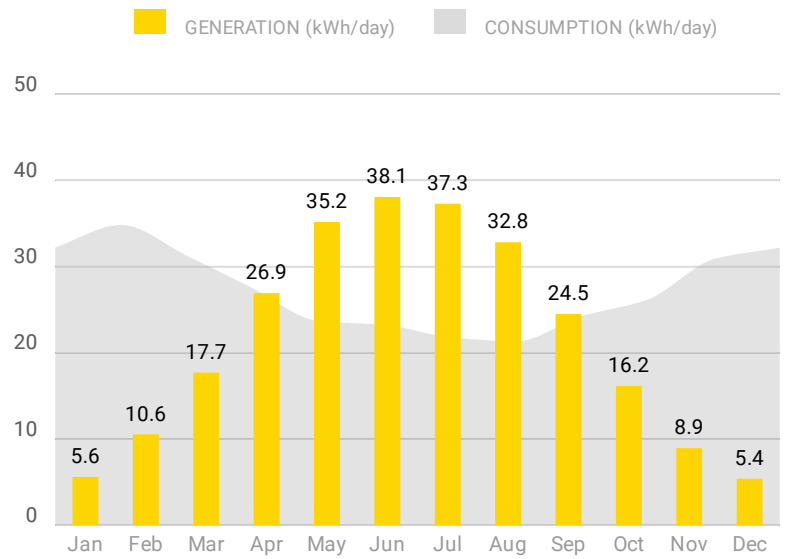
Module-level PV Optimizer

Module-level PV Optimizer
20 x 1TS4-A-O

Warranties: 12 Year Panel Product Warranty, 25 Year Panel Performance Warranty, 10 Year Inverter Product Warranty, 10 Year Battery Product Warranty

System Performance

79%
Energy From Solar



System Performance Assumptions: System Total losses: 0%, Inverter losses: 0%, Optimizer losses: 0%, Shading losses: 15.1%, Performance Adjustment: 0%, Output Calculator: MCS. Panel Orientations: 20 panels with Azimuth 180 and Slope 20.

The performance of solar PV systems is impossible to predict with certainty due to the variability in the amount of solar radiation (sunlight) from location to location and from year to year. This estimate is based upon the standard MCS procedure is given as guidance only. It should not be considered as a guarantee of performance. The solar PV self-consumption has been calculated in accordance with the most relevant methodology for your system. There are a number of external factors that can have a significant effect on the amount of energy that will be self-consumed.

Shading will be present on your system that will reduce its output to the factor stated. This factor was NOT calculated using the MCS shading methodology, but we can confirm that the system as quoted, taking into account the shading present, will deliver at least 90% of the energy (in kWh) as set out in this performance estimate.

This system performance calculation has been undertaken using estimated values for array orientation, inclination, or shading. Actual performance may be significantly lower or higher if the characteristics of the installed system vary from the estimated values.

Important Note: The energy performance and benefits of EESS is impossible to predict with certainty due to the numerous functions a system can be programmed to perform. This estimate is based upon the standard MCS proceduce and is given as guidance only. It should not be considered as a guarantee of performance.

A. Installation data		
Installed capacity of PV system - kWp (stc)	10.10	kWp
Orientation of the PV system - degrees from South	Group 1: 20 panels with Orientation: 0 °	°
Inclination of system - degrees from horizontal	Group 1: 20 panels with Tilt: 20°	°
Postcode region	12	
B. Performance calculations		
kWh/kWp (Kk) from table	Group 1: 922	kWh/kWp

Shade Factor (SF)	0.84	
Estimated annual output (kWp x Kk x SF)	7,903	kWh
C. Estimated PV self-consumption - PV Only		
Assumed occupancy archetype	In Half Day	
Assumed annual electricity consumption, kWh	10,000.00	kWh
Assumed annual electricity generation from solar PV system, kWh	7,903	kWh
Expected solar PV self-consumption (PV Only)	3,081.88	kWh
Grid electricity independence / Self-sufficiency (PV Only)	30.82	%
D. Estimated PV self-consumption - with EESS		
Assumed usable capacity of electricity energy storage device, which is used for self-consumption, kWh	13.50	kWh
Expected solar PV self-consumption (with EESS)	6,311.68	kWh
Grid electricity independence / Self-sufficiency (with EESS)	63.0%	%

Environmental Benefits

Solar has no emissions. It just silently generates pure, clean energy.

Each Year

79% Of CO_2, SO_x & NO_x

2 tons Avoided CO_2 per year

Over System Lifetime

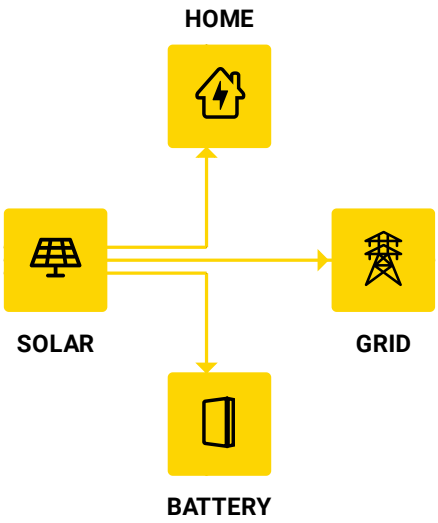
58,991 Car km avoided

379 Trees planted

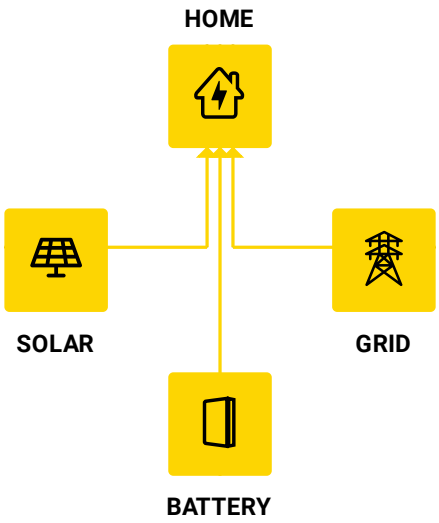
42 Long haul flights avoided

How your system works

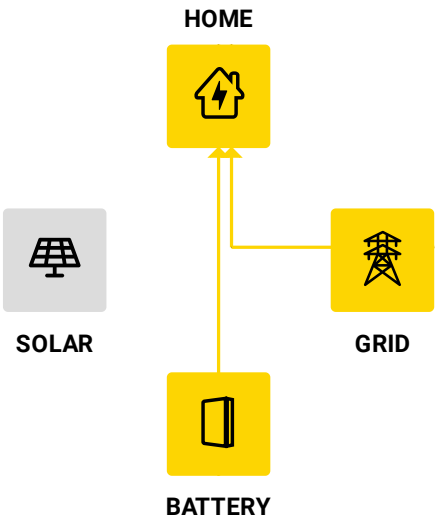
Generating Excess Solar



Partially Offset Usage

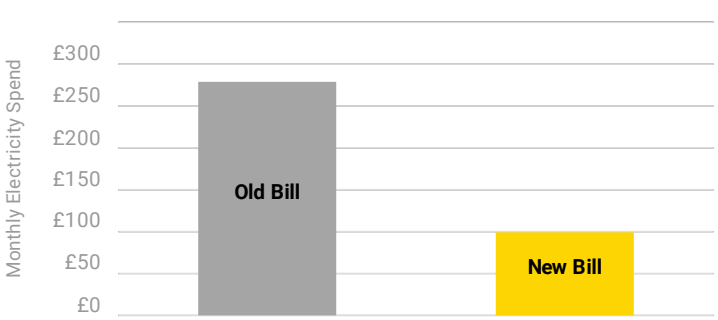


Night

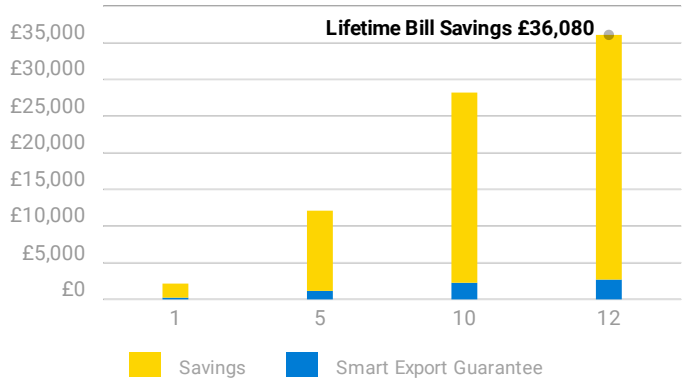


Electricity Bill Savings

First Year Monthly Bill Savings



Cumulative Bill Savings



Month	Solar Generation (kWh)	Electricity Consumption before solar (kWh)	Electricity Imported after solar (kWh)	Electricity Exported after solar (kWh)	Export Credit (£)	Utility Bill before solar (£)	Utility Bill after solar (£)	Estimated Savings (£)
Jan	174	999	829	0	0	332	278	54
Feb	296	975	690	0	0	323	232	91
Mar	549	969	448	0	0	322	156	167
Apr	808	824	140	78	12	276	45	231
May	1,090	734	2	313	47	247	-34	281
Jun	1,142	698	0	405	61	235	-49	284
Jul	1,156	676	0	442	66	229	-54	282
Aug	1,018	662	0	317	48	224	-35	259
Sep	735	728	68	37	6	245	28	217
Oct	501	812	336	0	0	272	120	152
Nov	268	926	665	0	0	308	225	84
Dec	167	998	833	0	0	332	279	53

Your projected energy cost is calculated by considering a 7.0% increase in energy cost each year, due to trends in the raising cost of energy. This estimate is based on your selected preferences, current energy costs and the position and orientation of your roof to calculate the efficiency of the system. Projections are based on estimated usage of 10000 kWh per year, assuming Custom Tariff Electricity Tariff.

Your electricity tariff rates may change as a result of installing the system. You should contact your electricity retailer for further information.

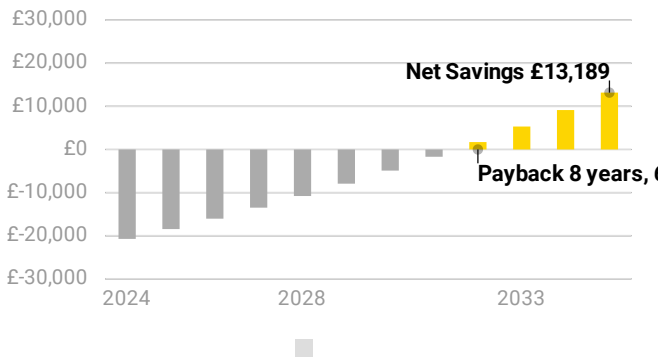
Proposed Tariff Details - Custom Tariff	
Energy Charges	
rate 0 *All Day*	£0.32 / kWh
Smart Export Guarantee	
rate 0 *All Day*	£0.15 / kWh

Fixed Charges	
Fixed Charge	£0.40 / day

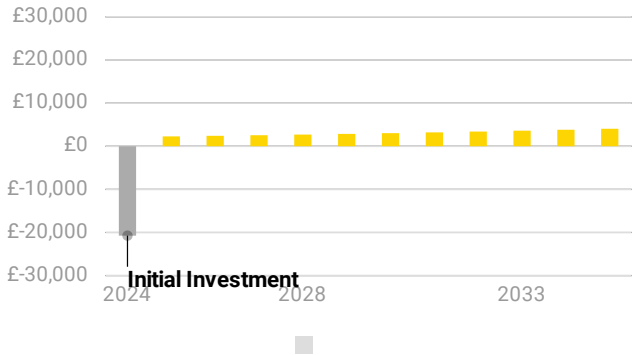
Net Financial Impact Cash

£36,080 Utility Bill Savings - £22,891 Net System Cost = £13,189 Estimated Net Savings

Cumulative Savings From Going Solar



Annual Savings From Going Solar



Estimates do not include replacement costs of equipment not covered by a warranty. Components may need replacement after their warranty period. Financial discount rate assumed: 6.75%

Quotation

Payment Option: Cash

20 x JAM66S30-505/MR 505 Watt Panels (JA Solar) 2 x S5-GR1P5K (SOLIS - Ningbo Ginlong Technologies) 1 x Tesla Powerwall+ (Tesla) 20 x 1TS4-A-O Tilt Racks (20 panels)	
Total System Price	£22,891.00 Excluding £0.00 VAT
Purchase Price	**£22,891.00** Including £0.00 VAT

Price excludes Retailer Smart Meter should you want us to install your Smart Meter it will be an additional cost.
This proposal is valid until 28th March 2024.

Quote Acceptance

I have read & accept the terms and conditions.

Signature _____

Name _____ Date _____

OpenSolar

Harvest the Sunshine

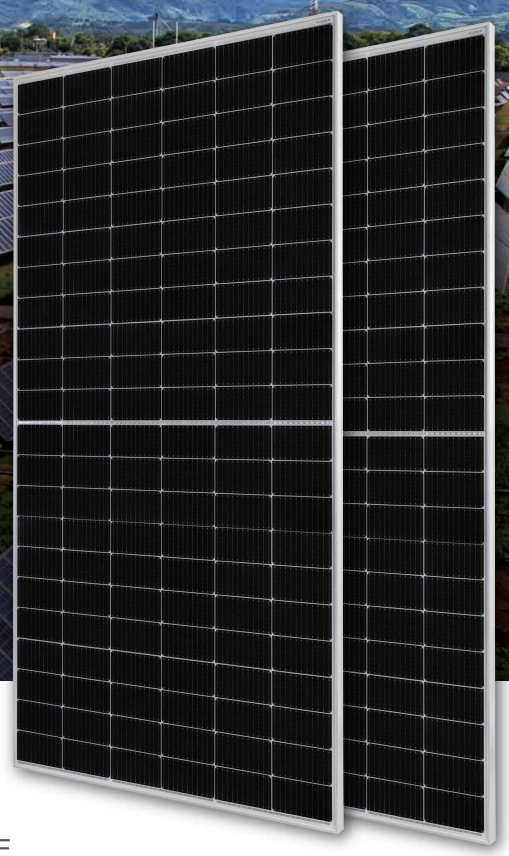
DEEP BLUE 3.0

Mono

505W MBB Half-cell Module
JAM66S30 480-505/MR Series

Introduction

Assembled with 11BB PERC cells, the half-cell configuration of the modules offers the advantages of higher power output, better temperature-dependent performance, reduced shading effect on the energy generation, lower risk of hot spot, as well as enhanced tolerance for mechanical loading.

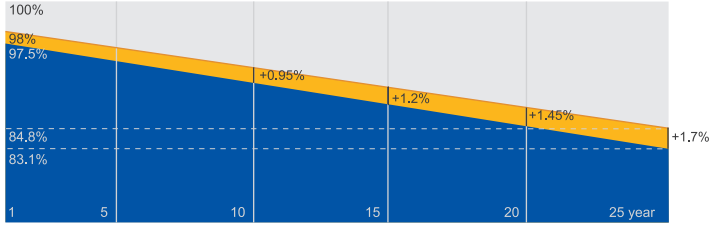


- Higher output power
- Lower LCOE
- Less shading and lower resistive loss
- Better mechanical loading tolerance

Superior Warranty

- 12-year product warranty
- 25-year linear power output warranty

0.55% Annual Degradation Over 25 years



New linear power warranty Standard module linear power warranty

Comprehensive Certificates

- IEC 61215, IEC 61730,UL 61215, UL 61730
- ISO 9001: 2015 Quality management systems
- ISO 14001: 2015 Environmental management systems
- ISO 45001: 2018 Occupational health and safety management systems
- IEC 62941:2019 Terrestrial photovoltaic (PV) modules - Quality system for PV module manufacturing

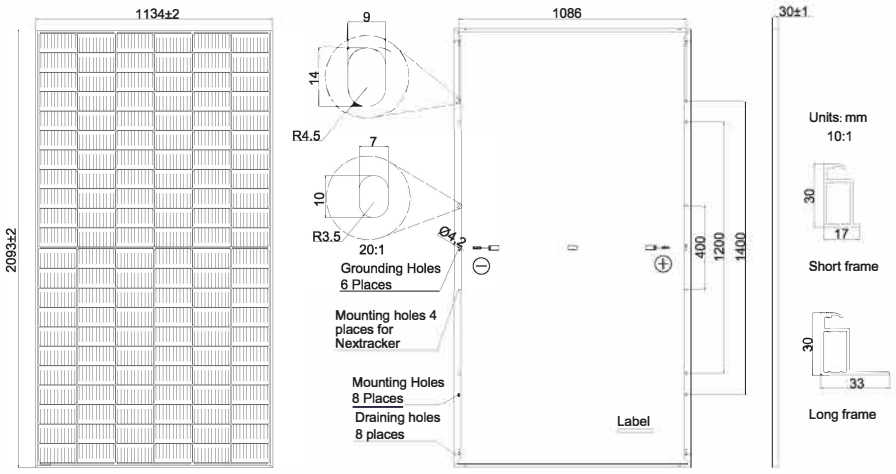
JA SOLAR

www.jasolar.com

JA SOLAR

JAM66S30 480-505/MR Series

MECHANICAL DIAGRAMS



Remark: customized frame color and cable length available upon request

SPECIFICATIONS

Cell	Mono
Weight	25.2kg
Dimensions	2093±2mm×1134±2mm×30±1mm
Cable Cross Section Size	4mm² (IEC), 12 AWG(UL)
No. of cells	132(6×22)
Junction Box	IP68, 3 diodes
Connector	MC4-EVO2/QC 4.10-35
Cable Length (Including Connector)	Portrait: 200mm(+)/300mm(-); Landscape: 1200mm(+)/1200mm(-)
Packaging Configuration	36pcs/Pallet 792pcs/40HQ Container

ELECTRICAL PARAMETERS AT STC

TYPE	JAM66S30 -480/MR	JAM66S30 -485/MR	JAM66S30 -490/MR	JAM66S30 -495/MR	JAM66S30 -500/MR	JAM66S30 -505/MR
Rated Maximum Power(Pmax) [W]	480	485	490	495	500	505
Open Circuit Voltage(Voc) [V]	45.07	45.20	45.33	45.46	45.59	45.72
Maximum Power Voltage(Vmp) [V]	37.62	37.81	37.99	38.17	38.35	38.53
Short Circuit Current(Isc) [A]	13.65	13.72	13.79	13.86	13.93	14.00
Maximum Power Current(Imp) [A]	12.76	12.83	12.90	12.97	13.04	13.11
Module Efficiency [%]	20.2	20.4	20.6	20.9	21.1	21.3
Power Tolerance	0~+5W					
Temperature Coefficient of Isc(α_Isc)	+0.045%/℃					
Temperature Coefficient of Voc(β_Voc)	-0.275%/℃					
Temperature Coefficient of Pmax(γ_Pmp)	-0.350%/℃					
STC	Irradiance 1000W/m², cell temperature 25℃, AM1.5G					

Remark: Electrical data in this catalog do not refer to a single module and they are not part of the offer.They only serve for comparison among different module types.

ELECTRICAL PARAMETERS AT NOCT

TYPE	JAM66S30 -480/MR	JAM66S30 -485/MR	JAM66S30 -490/MR	JAM66S30 -495/MR	JAM66S30 -500/MR	JAM66S30 -505/MR
Rated Max Power(Pmax) [W]	363	367	370	374	378	382
Open Circuit Voltage(Voc) [V]	42.15	42.30	42.43	42.58	42.72	42.86
Max Power Voltage(Vmp) [V]	35.54	35.67	35.76	35.84	35.93	36.02
Short Circuit Current(Isc) [A]	10.99	11.06	11.13	11.20	11.27	11.34
Max Power Current(Imp) [A]	10.21	10.28	10.36	10.44	10.52	10.60
NOCT	Irradiance 800W/m², ambient temperature 20°C,wind speed 1m/s, AM1.5G					

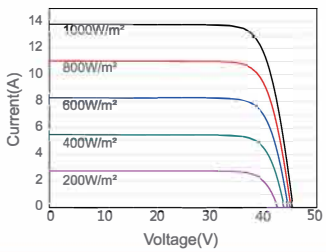
*For NexTracker installations, Maximum Static Load, Front is 2400Pa while Maximum Static Load, Back is 2400Pa.

OPERATING CONDITIONS

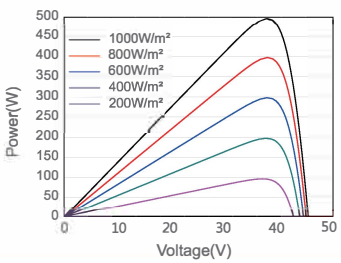
Maximum System Voltage	1000V/1500V DC
Operating Temperature	-40℃~+85℃
Maximum Series Fuse Rating	25A
Maximum Static Load,Front* Maximum Static Load,Back*	5400Pa(112lb/ft²) 2400Pa(50lb/ft²)
NOCT	45±2℃
Safety Class	Class Ⅱ
Fire Performance	UL Type 1

CHARACTERISTICS

Current-Voltage Curve JAM66S30-495/MR



Power-Voltage Curve JAM66S30-495/MR



Current-Voltage Curve JAM66S30-495/MR