

TECHNICAL SUBMISSION

From: Fusion Electrics	Tech 07
	Sub No. Date: 03/09/2025
To: Thomas Corbett	Project: Imagination Two-Knowsley

Approval of the Following Equipment is Required:

*Equipment: PV	Make: Solar Edge
*Description/Location: Roof Section	

*ATTACHED DETAIL DOCUMENTS:

(Insert references within boxes identifying supporting documentation to be included within this submission – pdf filename).

(i)	Equipment Specifying Schedule	292347---three-phase-inverter-with-setapp-eu---en Inverter SE20k clenergy_trapezoidal-u_support DMEGC_Datasheet-DM500M10RT-B60HBT rik-5a-rogowski-integrator-kit-datasheet se-firefighter-gateway se-s-series-commercial-power-optimizer-datasheet-eng-eu2 solaredge-wnd-modbus-meter-datasheet-march19 Proposal_Acornfield_Road (1)	(vi)		
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(ii)	Panel Distribution &		(vii)	Assembly & Installation Details	As per technical data sheets provided.
(iii)	Design Check Calculations		(viii)	O & M Instructions	
(iv)	Certified Performance Levels		(ix)	List of Recommended Spares	
(v)	QA/QC Documents				
*Compliance		The enclosed documents are specification compliant: <u>Yes</u>			
Schedule of Deviations		1. 2. 3.			
<u>REVIEWED & CHECKED:</u>		SIGNED Liam Prendergast		DATE: 03.09.25	
<u>OVERALL STATUS OF TECH SUBMISSION</u>					
Status A – Proceed no Comments					
Status B – Proceed including any comments.					
Status C – Do Not Proceed – Re-issue including comments.					

*Must be completed

Fusion Notes

Comments:

Three Phase Inverter For Europe

SE12.5K - SE20K

INVERTERS



Specifically designed to work with power optimizers

- // Superior efficiency (98%)
- // Quick and easy inverter commissioning directly from a smartphone using the SolarEdge SetApp
- // Small, lightest in its class, and easy to install
- // Built-in module-level monitoring
- // Internet connection through Ethernet or Wireless
- // IP65 – Outdoor and indoor installation
- // Fixed voltage inverter for longer strings
- // Smart Energy Management control
- // Advanced safety features - integrated arc fault protection
- // Optional RS485 surge protection

Three Phase Inverter

For Europe

SE12.5K – SE20K

Applicable to inverters with part number	SEXXK-XXXXXBXX4			SEXXK-XXXXIBXX4	
	SE12.5K	SE16K	SE17K	SE20K	
OUTPUT					
Rated AC Active Output Power	12500	16000	17000	20001*	W
Maximum AC Apparent Output Power	12500	16000	17000	20001*	VA
AC Output Voltage - Line to Line / Line to Neutral (Nominal)	400 / 230				Vac
AC Output Voltage - Line to Neutral (Range)	184 - 264.5				Vac
AC Frequency	50/60 ± 5				Hz
AC Output Line Connections	20	23.2	24.6	29	Aac
Grids Supported - Three Phase	3 / N / PE (WYE with Neutral)			3 / N / PE (WYE with Neutral), 3 / PE	
Utility Monitoring, Islanding Protection, Configurable Power Factor, Country Configurable Thresholds	Yes				
THD	≤ 3				%
INPUT					
Maximum DC Power (Module STC)	16850	21600	22950	30000	W
Transformer-less, Ungrounded	Yes				
Maximum Input Voltage DC+ to DC-	1000				Vdc
Nominal Input Voltage DC+ to DC-	750				Vdc
Maximum Input Current	21	23.2	24.6	29	Adc
Reverse-Polarity Protection	Yes				
Ground-Fault Isolation Detection	700kΩ Sensitivity ⁽¹⁾			167kΩ Sensitivity ⁽¹⁾	
Maximum Inverter Efficiency	98				%
European Weighted Efficiency	97.7				%
Nighttime Power Consumption	< 2.5			< 4	W
ADDITIONAL FEATURES					
Supported Communication Interfaces ⁽²⁾	RS485, Ethernet, Wi-Fi (optional) ⁽³⁾ Cellular (optional)				
Inverter Commissioning	With the SetApp mobile application using built-in Wi-Fi access point for local connection				
Smart Energy Management	Export Limitation				
Arc Fault Protection	Integrated, User Configurable (According to UL1699B)				
RS485 Surge Protection	Optional ⁽⁴⁾				
DC Surge Protection	-			Type II, field replaceable, integrated	
AC Surge Protection	-			Type II, field replaceable, optional	
STANDARD COMPLIANCE					
Safety	IEC-62103 (EN50178), IEC-62109, AS3100				
Grid Connection Standards ⁽⁵⁾	VDE-AR-N-4105, G99, AS-4777, EN50438, EN50549-1, CEI-021, VDE 0126-1-1, CEI-016, EN50549-1				
Emissions	IEC61000-6-2, IEC61000-6-3, IEC61000-3-11, IEC61000-3-12, Class B			IEC61000-6-2, IEC61000-6-3, IEC61000-3-11, IEC61000-3-12, Class A	
RoHS	Yes				
INSTALLATION SPECIFICATIONS					
AC Output Gland Diameter / Wire Cross Section	15-21mm / Solid wire 2.5-16 mm ²			Cable diameter 19-28 mm / 4 - 16 mm ²	
DC Input	2 MC4 pairs			4 MC4 pairs	
Dimensions (H x W x D)	549 x 317 x 264			550 x 317 x 273	mm
Weight	30.7			32	kg
Operating Temperature Range	-40 to +60 ⁽⁶⁾				°C
Cooling	Fan (user replaceable)				
Noise	< 50			<62	dBA
Protection Rating	IP65 - outdoor and indoor				
Mounting	Brackets provided				

* 19900W for Italy

(1) Where permitted by local regulation

(2) Refer to Datasheets -> Communications category in Downloads page for specifications of optional communication options: <https://www.solaredge.com/resource-library>

(3) Wi-Fi connectivity requires connection of an additional Wi-Fi component, ordered separately. For more details ask your SolarEdge sales person or refer to: <https://www.solaredge.com/products/communication>

(4) An RS485 SPD plug-in can be purchased. Refer to: https://www.solaredge.com/sites/default/files/se_spd_plug_in_for_rs485_for_3ph_with_setapp_ds.pdf

(5) For all standards refer to Certifications category in Downloads page: <https://www.solaredge.com/resource-library>

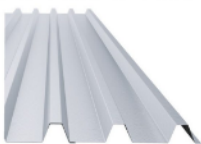
(6) For power de-rating information refer to: <https://www.solaredge.com/sites/default/files/se-temperature-derating-note.pdf>

(7) For SE15k and above, the minimum DC power should be 11KW



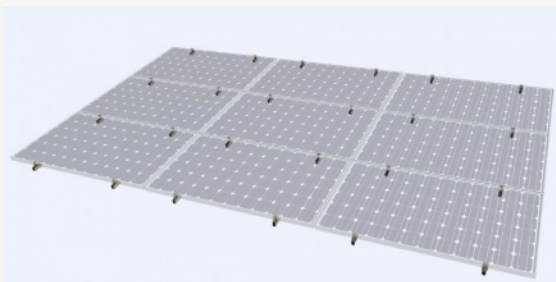
Trapezoidal Solar Mounting System

Trapezoidal is a revolutionary solar roof mounting solution that sets the standard on trapezoid steel sheet roofs.



The whole system contains only 3 components, it is compact, simple and very quick to install.

It remains the most cost-effective industrial roof mounting system for Solar.



The lightweight, anodized aluminium **U-Support bracket** with EPDM base seal is just 20mm wide which makes it suitable for all Trapezoidal sheet profiles.



It replaces the need for rail avoiding the concerns with expansion and contraction on large projects while significantly reducing cost and mounting times of two minutes per PV module – it's fast to install.



The **ER-U-S5.5X25-S12 screw** is a vital component and Genesis has worked closely with the world-leading screw manufacturer to develop this unique revolutionary stitching screw.

The brief was to eliminate the need for separate screws for different various sheet thicknesses while at the same time improving performance across the board. This screw with twin asymmetric thread sets the benchmark for fixing our Trapezoidal U-Support bracket to a single skin, multi skin, or composite panel roof design.



We also have the **FR Drive Tool accessory** which is an invaluable tool to help installers speed up the amount of time spent on installing trapezoidal solar systems.

This tool provides reliable and consistent screw guidance.

Also, it partially helps to prevent the overdrive of the screws which require a very low torque.

Trapezoidal Features and Benefits



Simple and Fast Installation

Just 3 components, using just one screw from 0.4 to 0.7-gauge steel top sheet. Using Clenergy innovative Z-module technology to easily attach the Solar PV modules and the FR Drive tool with sharp point screw geometry for fast reliable screw fixing.

Outstanding Performance

Trapezoidal is manufactured from high-grade anodized aluminium and A2 stainless steel. The asymmetric twin thread ensures improved pull-out performance and utilizing three screws per bracket extends the range of use beyond our competitors.

The sharp point screw geometry faster drive with no swarf/debris that might damage the roof. With both the U-Support bracket and the screw washer having EPDM seals you have complete peace of mind that the watertight integrity of the roof will be maintained.

With Clenergy you can depend on durable, strong, maintenance-free solar installations.

Optimum Design

Trapezoidal has a 20mm base to suit all Trapezoidal profiles.

Suitable for 0.4 to 0.7-gauge, single skin, twin skin or composite industrial roof designs.

With three asymmetric twin thread screws per bracket, it is suitable for high wind uplift associated in particular with low pitched roofs.

32mm high for optimum cooling and space to reach/join cables below the PV modules.

iNFINITY RT

N-type

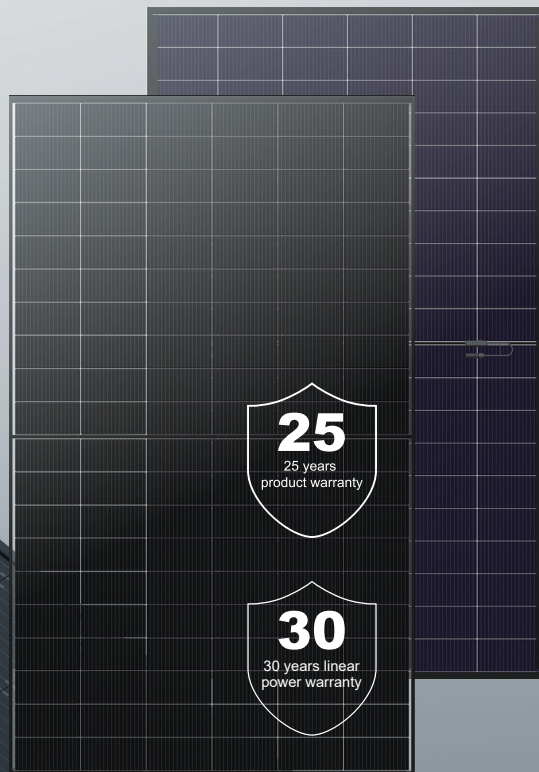
Bifacial Module with Double Glass

DMxxxM10RT-B60HBT

490~510W

23.1%
Max. Efficiency

- **Leading manufacturing**
40+ years experience in high-tech manufacturing.
- **High environmental, social and governance responsibility (ESG)**
100% green production, transparent supply chain and excellent ESG rating in the solar industry.



Outstanding Aesthetics

Designed with aesthetics in mind and manufactured using DMEGC Advanced Black Technology.



Extended Stress Tests

Protection against harsh environmental conditions
Certified by TÜV Rheinland.



Green Product

Focus on circular economy - low carbon footprint, PFAS-free and recyclable components.

COMPANY MANAGEMENT SYSTEM

SA 8000: ILO Standards. Social responsibility standards
ISO 9001: Quality management system
ISO 14001: Environmental management system
ISO 45001: Occupational health and safety management system
ISO 50001: Energy management system
ISO 27001: Information security management system

PRODUCT CERTIFICATION

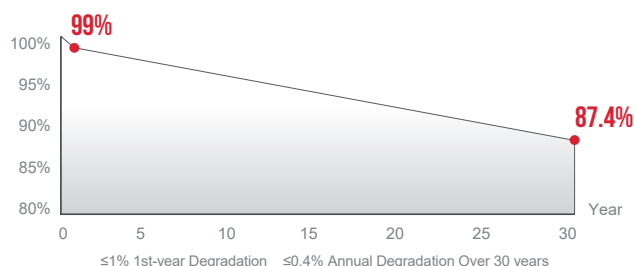
IEC 61215, IEC 61730
Extended-Stress (IEC TS 63209)
Ammonia Corrosion (IEC 62716)
Salt Mist Corrosion (IEC 61701)
LeTID (IEC TS 63342)
Dust & Sand (IEC 60068)



Warranty partner



POWER WARRANTY

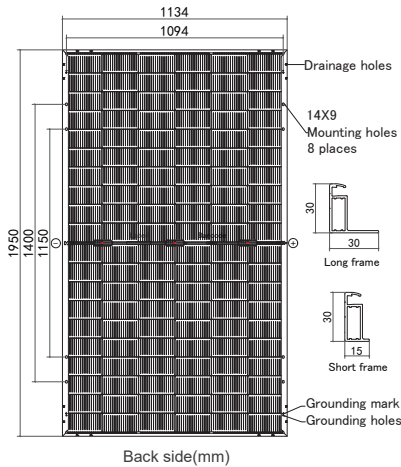


DMxxxM10RT-B60HBT



Module Specification

Cell Type	N type Mono-crystalline , 120 (6×20)
Dimensions (mm)	1950×1134×30
Weight (kg)	26.8
Front Cover	2 mm heat strengthened glass
Rear Cover	2 mm heat strengthened glass
Junction Box	3 Diodes , IP68 according to IEC 62790
Cables	4mm ² /Portrait: 350mm (+)/250mm(-) Landscape: 1300mm(+)/1300mm(-) Length can be customized
Connector Type	PV-ZH202B or MC4 (1000V) PV-ZH202B or MC4-EVO 2A (1500V)



Electrical Specifications¹

Module Type	DM490M10RT-B60HBT-U ⁴ DM490M10RT-B60HBT		DM495M10RT-B60HBT-U DM495M10RT-B60HBT		DM500M10RT-B60HBT-U DM500M10RT-B60HBT		DM505M10RT-B60HBT-U DM505M10RT-B60HBT		DM510M10RT-B60HBT-U DM510M10RT-B60HBT	
Testing Condition	STC ²	NMOT ³	STC	NMOT	STC	NMOT	STC	NMOT	STC	NMOT
Maximum Power (Pmax/W)	490	369	495	373	500	376	505	380	510	384
Maximum Power Current (Imp/A)	13.16	10.58	13.23	10.64	13.30	10.69	13.36	10.74	13.42	10.79
Maximum Power Voltage (Vmp/V)	37.26	34.84	37.46	35.03	37.66	35.22	37.86	35.40	38.06	35.59
Short-circuit Current (Isc/A)	14.08	11.41	14.15	11.46	14.22	11.52	14.28	11.57	14.34	11.62
Open-circuit Voltage (Voc/V)	44.30	41.71	44.50	41.90	44.70	42.09	44.90	42.28	45.10	42.47
Module Efficiency STC (%)	22.2		22.4		22.6		22.8		23.1	

¹ Measurements according to IEC 60904-3, Measurement tolerance: Isc: ±4%, Voc: ±3%, Test uncertainty for Pmax: ±3%, Bifaciality: 80% ±5%

² STC (Standard Test Condition): Radiation 1000 W/m², Module temperature 25 °C, AM = 1.5

³ NMOT: Radiation 800 W/m², Ambient temperature 20 °C, AM = 1.5, Wind Speed 1 m/s

⁴ "U" represents the double glass module type applied to a maximum system voltage of 1000V DC



Electrical Specifications¹ (BNPI²)

Nameplate Power (W)	490	495	500	505	510
Maximum Power (Pmax/W)	542	547	553	558	564
Maximum Power Current (Imp/A)	14.52	14.60	14.68	14.74	14.81
Maximum Power Voltage (Vmp/V)	37.30	37.50	37.71	37.91	38.11
Short-circuit Current (Isc/A)	15.49	15.57	15.64	15.71	15.78
Open-circuit Voltage (Voc/V)	44.31	44.51	44.71	44.91	45.11

¹ Measurements according to IEC 60904-3, Measurement tolerance: Isc:±4%, Voc: ±3%, Test uncertainty for Pmax:±3%

² BNPI: Front radiation 1000 W/m², Rear radiation 135 W/m², Module temperature 25 °C, AM = 1.5



Temperature Characteristics

Nominal Module Operating Temperature (NMOT)	42±2 °C
Temperature Coefficient of Pmax (%/°C)	-0.29
Temperature Coefficient of Voc (%/°C)	-0.25
Temperature Coefficient of Isc (%/°C)	+0.048



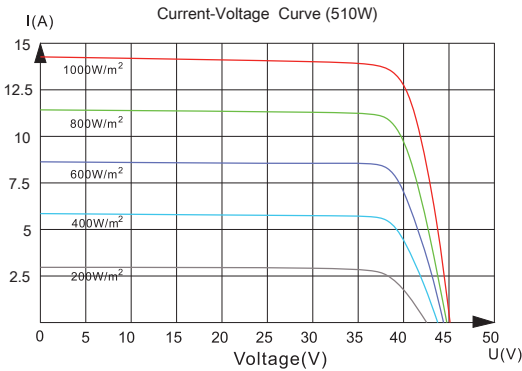
Packaging

Container	40HQ
Pallet Dimensions (mm)	2000×1140×1250
Pieces per Pallet	36
Pieces per Container	864



Operating Conditions

Operating Temperature (°C)	-40 to +85
Maximum System Voltage (V)	1000/1500 DC (IEC)
Overcurrent Protection Rating (A)	30
Power Output Tolerance (%)	0~3
Protection Class	Class II
Max. Test Load, Push/Pull (Pa)	Front 5400 / Back 2400
Max. Design Load, Push/Pull (Pa)	Front 3600 / Back 1600



Hengdian Group DMEGC Magnetics Co.,Ltd.
Add: Hengdian Industrial Zone, Dongyang City Zhejiang Province, China 322118
Tel: 0086-579-8658-8826 E-mail: solar@dmegec.com.cn Website: www.dmegecsolar.com

DMEGC Renewable Energy B.V.
Add: Industrieweg 2,2641 RM Pijnacker, The Netherlands.
Tel: +31 (0) 8 58200765 E-mail: contact@dmegec.eu

Statement: The installation instructions and the warranty conditions must be followed. Due to technological progress, product parameters will be adjusted accordingly. When signing the contract, the latest data of the company shall prevail. All information in this data sheet corresponds to EN 50380. Changes and errors excepted. Document: EN DS-M10RT-B60HBT-20240730.

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RIK 5A

5A Rogowski Integrator Kit Datasheet



The Accuenergy 5A Rogowski Integrator Kit (RIK 5A) conveniently provisions up to three channels for Rogowski coils to be integrated to any metering device application that accepts a 5A input. Each integrator channel can be adjusted to accept one of seven field configurable CT ratios for added flexibility. The RIK 5A can be used on services up to 60,000A AC.

Features

- Available as a three-channel kit & compatible with both 50/60Hz systems
- Seven field-configurable CT ratios: 500A, 1kA, 2.5kA, 5kA, 10kA, 25kA, 50kA
- The rope-style current transformer flexes to fit into tight electrical panels
- The 0-5A rated output is compatible with any device with a 5A nominal current transformer input
- 2.5A to 50,000A current sensing range accommodates nearly any application
- CT ratios can be configured independently for each channel
- Includes three Rogowski coils



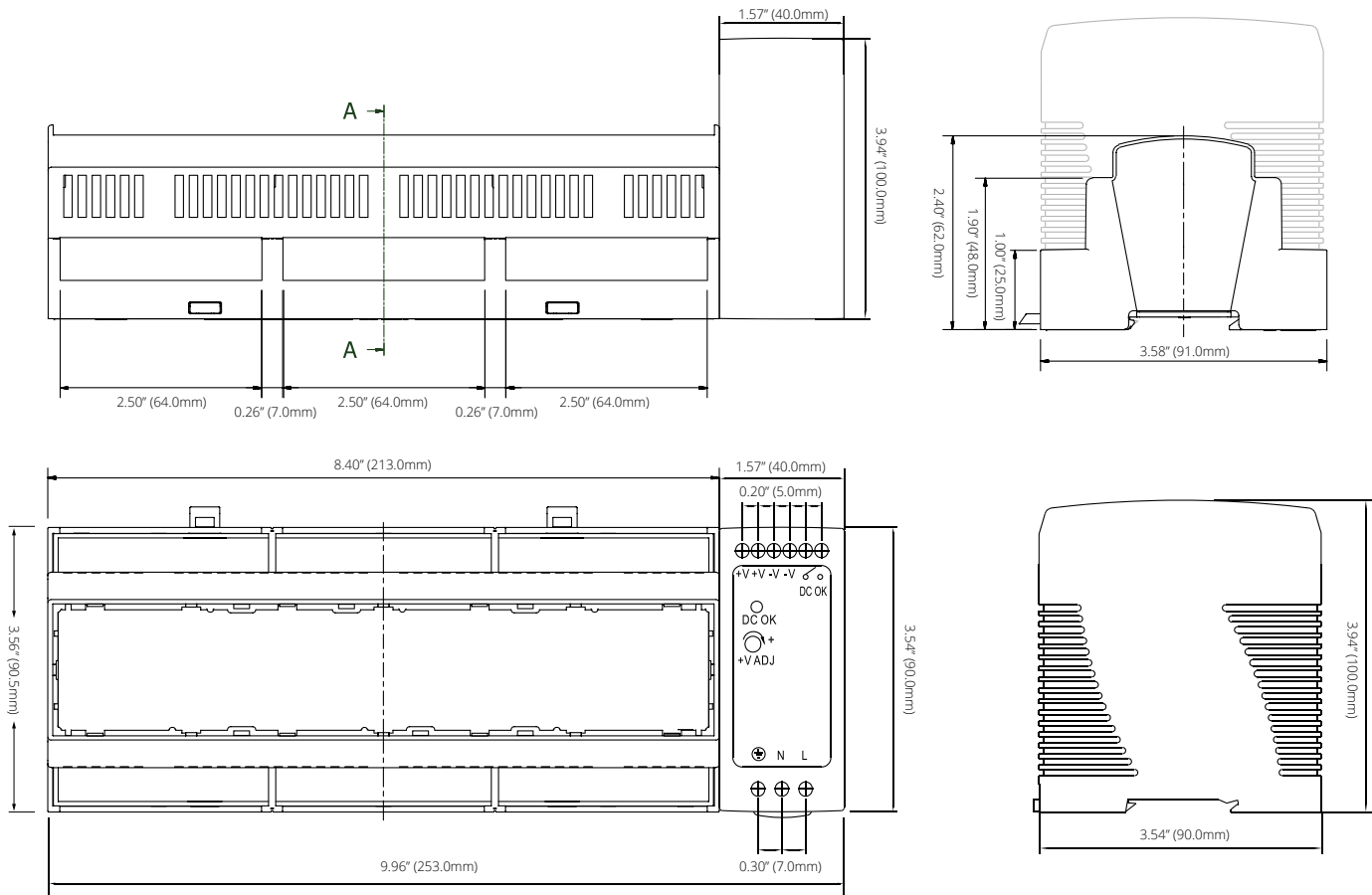
Specifications

RATED CURRENT	
Current Range	2.5A - 60000A
Sensing Range	500A, 1000A, 2500A, 5000A, 10000A, 25000A, 50000A User Selectable
Integrator Output	0 - 6A RMS (0 - 5A RMS Nominal)
Integrator Accuracy	±1% Full Scale Error
MECHANICAL/ENVIRONMENTAL	
Integrator Kit Size	253.0mm x 90.5mm x 100mm 9.97" x 3.56" x 3.94"
Input/Output Wire Connection	14 - 30 AWG
Operating Temperature	-20°C ~ 55°C -4°F ~ 131°F
Operating Humidity	Non-condensing, 0 to 95% RH
Integrator Enclosure Material	ABS, UL 94V-0
Mounting	DIN TS-35/7.5 or 15 (DIN 43880) or Panel
ELECTRICAL	
Measurement Channels	3 Channels (three-phase or single-phase)
Channel Cross Talk	<-60dB
Response Time	<10ms
Burden	1.8VA/channel
Maximum Output Impedance	50mΩ
Power Supply	AC/DC Power Supply 24Vdc, 85-264Vac
Supply Voltage	24Vdc ±5%
Supply Current	0.9Adc at 24Vdc
SAFETY/COMPLIANCE	
Certifications	CE, RoHS, UL Listed (E359521)
ROGOWSKI COIL OPTIONS:	
Window Size	RCT16-1000 - 106.0mm (4.17") RCT24-1000 - 178.0mm (7.01") RCT36-1000 - 271.0mm (10.67") RCT47-1000 - 369.0mm (14.53")
Length of Coil	RCT16-1000 - 400.0mm (15.75") RCT24-1000 - 600.0mm (23.62") RCT36-1000 - 900.0mm (35.43") RCT47-1000 - 1200.0mm (47.24")
Coil Material	Orange thermoplastic rubber UL 94V-0 rated flame retardant
Lead Wires	1000V UL Style 20940, 26AWG
Wire Polarity	White=Positive, Brown=Negative, Bare=Shield
Phase Orientation	Arrow Points Towards Load

Integrator's Current Range Settings

PRIMARY INPUT (A _{RMS})	SENSING RANGE (A)	OUTPUT	CT RATIO
500	2.5 to 600	5A @500A	500:5
1000	5 to 1200	5A @1000A	1000:5
2500	12.5 to 3000	5A @2500A	2500:5
5000	25 to 6000	5A @5000A	5000:5
10000	50 to 12000	5A @10000A	10000:5
25000	125 to 30000	5A @25000A	25000:5
50000	250 to 60000	5A @50000A	50000:5

Dimensions



Ordering Information

	Model	Rogowski Coil Length	Integrator Output	Lead Length
Ordering Number	RIK	-	-	-
Ordering Example	RIK	24	5A	5M
		16	5A	5M
		24		10M
		36		25M
		47		50M



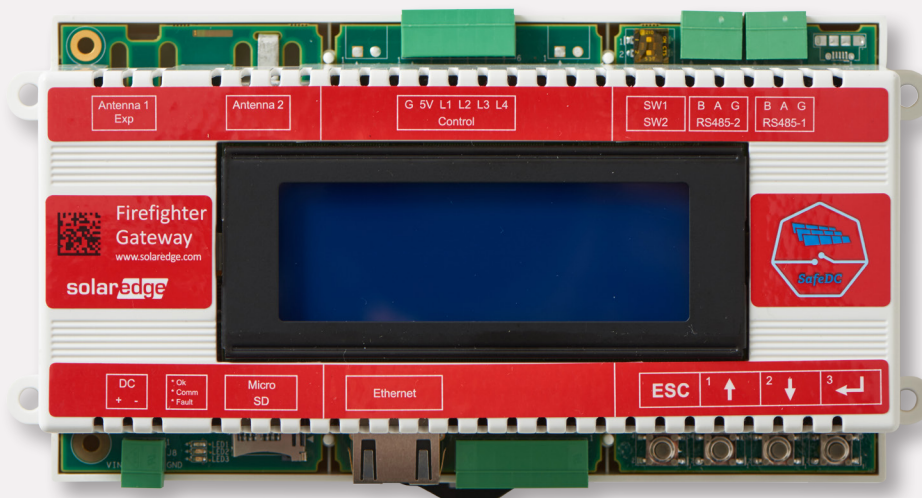
Accuenergy Inc.
Los Angeles - Toronto - Pretoria
North America Toll Free: 1-877-721-8908
Web: www.accuenergy.com
Email: marketing@accuenergy.com

Revision Date: August 2025 Version: 1.0.5
Specs Subject To Change Without Notice.

SolarEdge Firefighter Gateway

SE1000-CCG-F

COMMUNICATION



Central safety management for the SolarEdge system

- Manual & automatic system DC Shutdown
- Real-time indication of system DC voltage for safety assurance
- Emergency stop button for the entire PV system
- Notification to SolarEdge monitoring platform on system shutdown
- Easy installation - DIN rail and wall mount

/ SolarEdge Firefighter Gateway

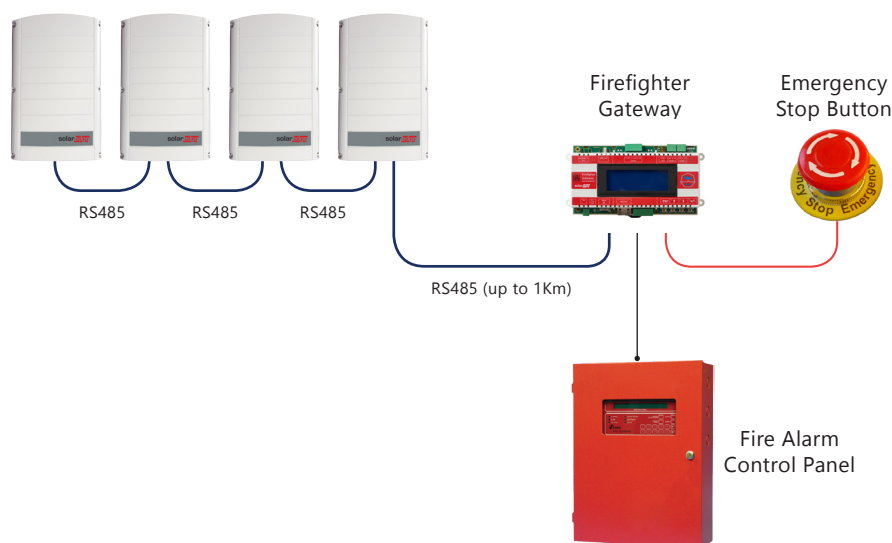
SE1000-CCG-F

POWER		
Power Supply - DIN Rail	Included, 100-240VAC, EU/UK/US/AU interchangeable, 2-pin plug	
Supply Voltage	9-14	Vdc
Connector Type	Terminal block	
Power Consumption	<2	W
COMMUNICATION INTERFACES		
Ethernet Interface	10/100-BaseT	
Wireless Connections	ZigBee module ⁽¹⁾ , GSM ^{(1) (2)}	
Fire Alarm Control Panel Interface	2 alarm inputs, 5V, GND ⁽³⁾	
SolarEdge Inverters	RS485	
ENVIRONMENTAL		
Operating Temperatures	-20 to 60 / -4 to 140	°C / °F
Protection Rating	IP20 Indoor	
MECHANICAL		
Mounting Type	DIN Rail / Wall mount	
Dimensions (L x W x H)	161.6 X 90 X 62 / 6.36 x 3.54 x 2.44	mm / Inch
Weight	0.5 / 1.1	kg / lbs
STANDARD COMPLIANCE		
Safety	UL60950-1, IEC-60950-1	
EMC	FCC Part 15 class B, IEC61000-6-2, IEC61000-6-3	

⁽¹⁾ Sold separately - see individual product specs for supported regions

⁽²⁾ EU only

⁽³⁾ Emergency stop button is not supplied by SolarEdge



Power Optimizer

For Europe

S1000 / S1200



POWER OPTIMIZER

SolarEdge's most advanced, cost-effective Power Optimizer for commercial and large field installations

Greater Energy Yields

- High efficiency (99.5%) with module-level MPPT, for maximized system energy production and revenue, and fast project ROI
- Supports high power and bifacial PV modules, and high string current for more power per string

Maximum Protection with Built-In Safety

- Designed to automatically reduce high DC voltage to touch-safe levels, upon grid/inverter shutdown, with SafeDC™
- Includes SolarEdge Sense Connect, allowing continuous monitoring to detect overheating due to installation issues or connector-level wear and tear

Lower BoS Costs

- Flexible system design enables maximum space utilization and up to 2x longer string lengths, 50% less cables, fuses and combiner boxes
- Supports connection of two PV modules in series with easy cable management and fast installation times

Simpler O&M

- Module-level system monitoring enabling pinpointed fault detection and remote, time-saving troubleshooting

/ Power Optimizer

For Europe

S1000 / S1200

	S1000	S1200	Units
INPUT ⁽¹⁾			
Rated Input DC Power ⁽²⁾	1100	1300	W
Absolute Maximum Input Voltage (Voc)	125		Vdc
MPPT Operating Range	12.5 – 105		Vdc
Maximum Continuous Input Current	15		Adc
Maximum Short Circuit Current (Isc) of Connected PV Module	20		Adc
Maximum Efficiency	99.5		%
Weighted Efficiency	98.8		%
Overvoltage Category	II		
OUTPUT DURING OPERATION			
Maximum Output Current	18	20	Adc
Maximum Output Voltage	80		Vdc
OUTPUT DURING STANDBY (POWER OPTIMIZER DISCONNECTED FROM INVERTER OR INVERTER OFF)			
Safety Output Voltage per Power Optimizer	1 ± 0.1		Vdc
STANDARD COMPLIANCE			
EMC	FCC Part 15, IEC 61000-6-2, and IEC 61000-6-3 – Class B, EN 55011 ⁽³⁾		
Safety	IEC 62109-1 (class II safety)		
Material	UL 94 V-0, UV Resistant		
RoHS	Yes		
Fire Safety	VDE-AR-E 2100-712:2018-12		
INSTALLATION SPECIFICATIONS			
Compatible SolarEdge Inverters	All commercial three phase inverters		
Maximum Allowed System Voltage	1000		Vdc
Dimensions (W x L x H)	129 x 165 x 52 / 5.08 x 6.49 x 2.047	129 x 165 x 59 / 5.08 x 6.49 x 2.32	mm / in
Weight (including cables)	1064 / 2.3	1106 / 2.4	gr / lb
Input Connector	MC4 ⁽⁴⁾		
Input Wire Length	Short Input: 0.1 / 0.32 Long Input: 1.3 / 4.26 ⁽⁵⁾	Short Input: 0.1 / 0.32 Long Input: 1.6 / 5.24 ⁽⁵⁾	m / ft
Output Connector	MC4		
Output Wire Length	(+) 4.7 (-) 0.10 / (+) 15.41 (-) 0.32	(+) 5.3 (-) 0.10 / (+) 17.38 (-) 0.32	m / ft
Operating Temperature Range ⁽⁶⁾	-40 to +85 / -40 to +185		°C / °F
Protection Rating	IP68 / NEMA6P		
Relative Humidity	0 – 100		%
Maximum Operating Altitude	2000		m

(1) For detailed Power Optimizer/PV module compatibility guidelines, refer to the [Application Note – Power Optimizer Compatibility with PV Modules](#).

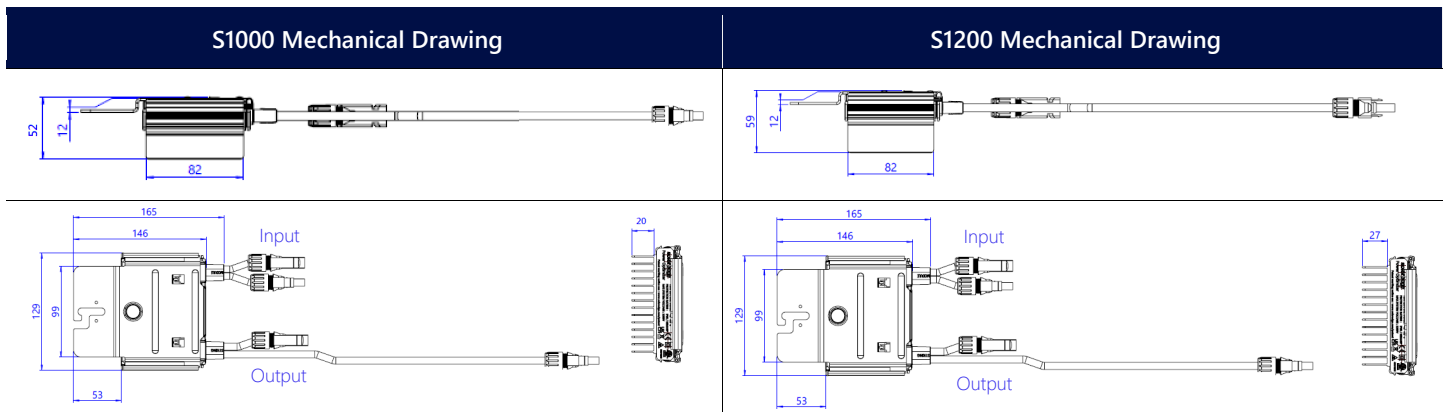
(2) Rated power of the module at STC will not exceed the power optimizer Rated Input DC Power. Modules with up to +5% power tolerance are allowed.

(3) For compliance with EN55011 class A (when required), installation shall be done using an inverter with a rated power of > 20kVA, and comply with the requirements in the EMC section of the [installation manual](#).

(4) For other connector types please contact SolarEdge.

(5) For S-Series models with long input cables (1.3m / 4.26ft or 1.6m / 5.24ft), the Sense Connect feature is only enabled on the output cable connectors.

(6) For ambient temperatures above +65°C / +149°F power derating is applied. Refer to the [Temperature Derating Technical Note](#) for details.



* Maintain clearance when installing SolarEdge power optimizers. For more details, refer to the [Power Optimizer Clearance Application Note](#).

Power Optimizer

For Europe

S1000

PV System Design Using a SolarEdge Inverter ⁽¹⁾⁽²⁾⁽³⁾⁽⁴⁾		230/400V Grid SE16K, SE17K, SE20K, SE25K*	230/400V Grid SE27.6K*	230/400V Grid SE30K*	230/400V Grid SE33.3K*	277/480V Grid SE40K*	Units
Compatible Power Optimizers		S1000					
Minimum String Length	Power Optimizers	14	14	15	14	15	
	PV Modules	27	27	29	27	29	
Maximum String Length	Power Optimizers	30	30	30	30	30	
	PV Modules	60	60	60	60	60	
Maximum Continuous Power per String [W]		13,500	13,950	15,300	13,500	15,300	W
Maximum Allowed Connected Power per String ⁽⁴⁾		1 string – 15,750	1 string – 16,200	1 string – 17,550	1 – 2 strings – 15,750	1 – 2 strings – 17,550	
		2 strings or more – 18,500	2 strings or more – 18,950	2 strings or more – 20,300	3 strings or more – 18,500	3 strings or more – 20,300	
Parallel Strings of Different Lengths or Orientations		Yes					
Maximum Difference in Number of Power Optimizers Allowed Between the Shortest and Longest String Connected to the Same Inverter Unit		5 Power Optimizers					

*The same rules apply for Synergy units of equivalent power ratings, that are part of the modular Synergy Technology inverter.

(1) S1000 cannot be mixed with S1200 in the same string. For P-series compatibility refer to the [SolarEdge Power Optimizer Inter-Compatibility Technical Note](#).

(2) For each string, a Power Optimizer may be connected to a single PV module if:

1) Each Power Optimizer is connected to a single PV module (the entire string has a 1:1 configuration).

2) It is the only Power Optimizer connected to a single PV module.

(3) For SE16K and above, the minimum STC DC connected power should be 11KW.

(4) To connect more STC power per string, design your project using [SolarEdge Designer](#).

S1200

PV System Design Using a SolarEdge Inverter ⁽⁵⁾⁽⁶⁾⁽⁷⁾⁽⁸⁾		230/400V Grid SE20K, SE25K*	230/400V Grid SE27.6K*	230/400V Grid SE30K*	230/400V Grid SE33.3K*	277/480V Grid SE40K*	Units
Compatible Power Optimizers		S1200					
Minimum String Length	Power Optimizers	14	14	15	14	15	
	PV Modules	27	27	29	27	29	
Maximum String Length	Power Optimizers	30	30	30	30	30	
	PV Modules	60	60	60	60	60	
Maximum Continuous Power per String [W]		15,000	15,500	17,000	15,000	17,000	W
Maximum Allowed Connected Power per String ⁽⁶⁾		1 string – 17,250	1 string – 17,750	1 string – 19,250	1 – 2 strings – 17,250	1 – 2 strings – 19,250	
		2 strings or more – 20,000	2 strings or more – 20,500	2 strings or more – 23,000	3 strings or more – 20,000	3 strings or more – 23,000	
Parallel Strings of Different Lengths or Orientations		Yes					
Maximum Difference in Number of Power Optimizers Allowed Between the Shortest and Longest String Connected to the Same Inverter Unit		5 Power Optimizers					

*The same rules apply for Synergy units of equivalent power ratings, that are part of the modular Synergy Technology inverter.

(5) S1200 cannot be mixed with any other power optimizer in the same string.

(6) For each string, a Power Optimizer may be connected to a single PV module if:

1) Each Power Optimizer is connected to a single PV module (the entire string has a 1:1 configuration).

2) It is the only Power Optimizer connected to a single PV module.

(7) For SE20K and above, the minimum STC DC connected power should be 11KW.

(8) To connect more STC power per string, design your project using [SolarEdge Designer](#).

SolarEdge is a global leader in smart energy technology. By leveraging world-class engineering capabilities and with a relentless focus on innovation, SolarEdge creates smart energy solutions that power our lives and drive future progress.

SolarEdge developed an intelligent inverter solution that changed the way power is harvested and managed in photovoltaic (PV) systems. The SolarEdge DC optimized inverter maximizes power generation while lowering the cost of energy produced by the PV system.

Continuing to advance smart energy, SolarEdge addresses a broad range of energy market segments through its PV, storage, EV charging, UPS, and grid services solutions.

-  SolarEdge
-  @SolarEdgePV
-  @SolarEdgePV
-  SolarEdgePV
-  SolarEdge
-  www.solaredge.com/corporate/contact

solaredge.com

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Cautionary Note Regarding Market Data and Industry Forecasts: This brochure may contain market data and industry forecasts from certain third-party sources. This information is based on industry surveys and the preparer's expertise in the industry and there can be no assurance that any such market data is accurate or that any such industry forecasts will be achieved. Although we have not independently verified the accuracy of such market data and industry forecasts, we believe that the market data is reliable and that the industry forecasts are reasonable.

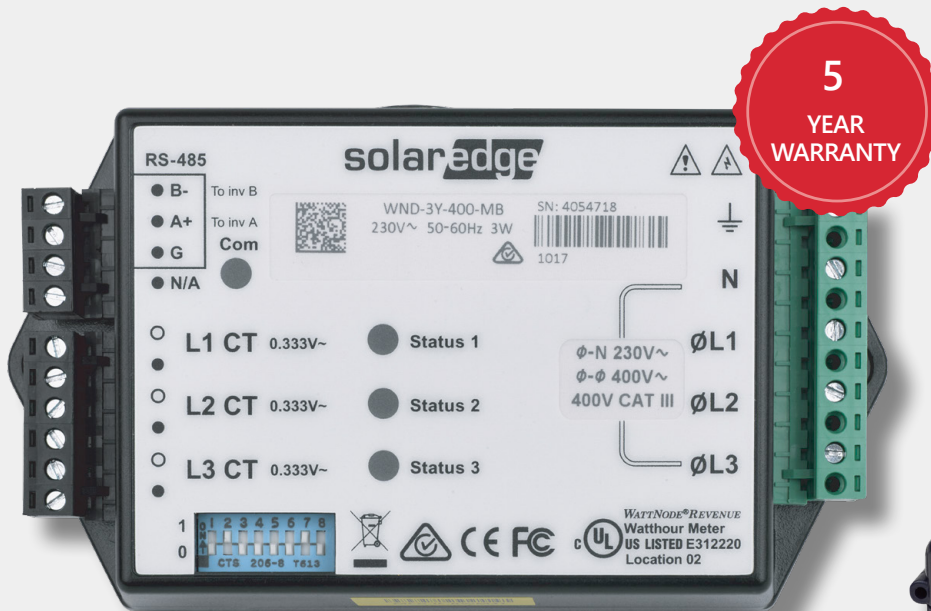
CE RoHS

solaredge

Energy Meter with Modbus Connection

SE-WND-3Y400-MB-K2

ACCESSORIES



Energy Meter with Modbus Connection for SolarEdge Installations

- High accuracy meter readings for production/consumption monitoring
- Import/Export meter readings for export limitation functionality
- Small and easy to install - fits in standard electrical panel
- Supports residential, commercial and utility-size installations
- Support RS485 120Ω line termination

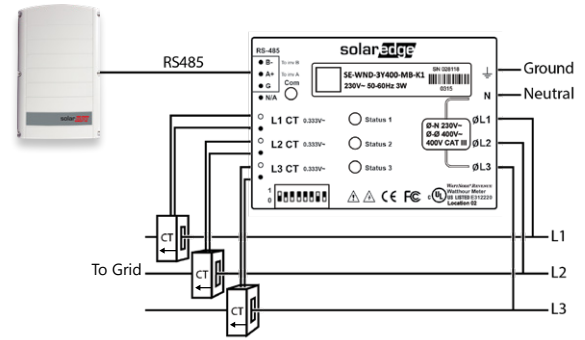
/ Energy Meter with Modbus Connection

SE-WND-3Y400-MB-K2

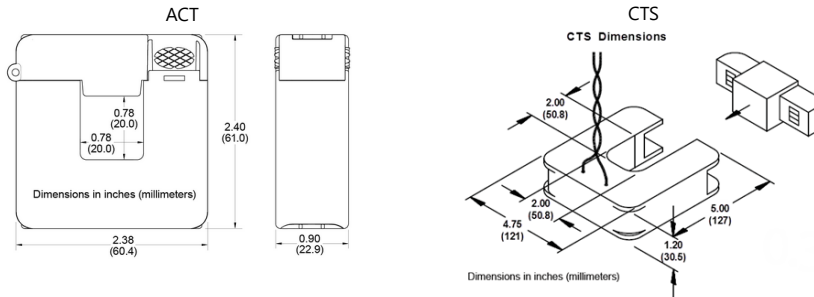
WHEN ORDERING A METER, ORDER CURRENT TRANSFORMERS AS WELL:

CURRENT TRANSFORMER MODEL(*)	RATED RMS CURRENT	DIMENSIONS (INTERNAL / EXTERNAL)
SE-CTML-0350-070	70 A	9 x 8.9 mm / 42.4 x 30.5 mm
SE-ACT-0750-50	50 A	20 x 20 mm / 61 x 60.4 mm
SE-ACT-0750-100	100 A	
SE-ACT-0750-250	250 A	
SE-CTS-2000-1000	1000 A	50.8 x 50.8 mm / 121 x 127 mm

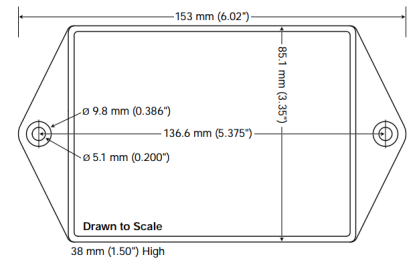
* One current transformer per phase; for other ratings contact SolarEdge



Current Transformer Dimensions



Meter Dimensions



SE-WND-3Y400-MB-K2		UNITS
ELECTRICAL SERVICE		
Operating Voltage Range - Line to Neutral / Line to Line	184-264.5 / 320-460	Vac
AC Frequency	50/60	Hz
Grids Supported - Single Phase ; Three Phase ⁽¹⁾	L / N / PE ; L1 / L2 / L3 / N / PE	
Power Consumption (typ.)	1.8	W
COMMUNICATION		
Supported Communication Interfaces	RS485	
Response time	≤1 ⁽²⁾	sec
Default Device ID (Modbus)	2	
RS485 line termination	120	Ω
ACCURACY (@25°C, PF: 1)⁽³⁾		
1% - 100% of Rated CT Current	±1.0	%
STANDARD COMPLIANCE		
Safety	IEC 61010-1, CAN/CSA-C22.2 No. 61010-1-04, IEC 61010-1:2010 (3rd Edition)	
Immunity	EN 61326, EN 61000-4-2, EN 61000-4-3, EN 61000-4-4, EN 61000-4-5, EN 61000-4-6, EN 61000-4-11	
Emissions	FCC Part 15: Class B, CISPR11: 2009: Class B	
Export Limiting Schemes	Engineering Recommendation G100. Issue 1 Amendment 1 2017 by ENA London UK	
INSTALLATION SPECIFICATIONS		
Dimensions (HxWxD)	85 x 153 x 38	mm
Weight	310	gr
Enclosure type	High impact, ABS and/or ABS/PC plastic UL 94V-0, IEC FV-0	
Operating Temperature Range	-40 to 75	°C
Relative Humidity (noncondensing)	5 - 90	%
Protection Rating	Indoor (Outdoor when installed in an outdoor enclosure)	
Mounting Type	DIN Rail / Wall mount	

⁽¹⁾ PE (Protective Earth) connection is not required for meter operation

⁽²⁾ When meter is connected at grid connection point, and when RS485 is used for multiple inverters

⁽³⁾ Using SE-ACTL-0750 CT models

Prepared by: Alex Kamaitis
07547498533
alex.k@fusionelectrics.co.uk

For:
Acornfield Road, Liverpool

Quote #: 7808016
Valid until: None



Solar Energy System Proposal

Recommended System Option

35_{kW}	£6,321	£25,434	£25,434
System Size	Estimated Annual Electricity Bill Savings	Total System Price	Net System Price



Your Solution

Solar Panels

Hengdian Group DMEGC Magnetics

35.0 kW Total Module Power

70 x 500 Watt Panels (DM500M10RT-B60HBB)

29,388 kWh per year

Inverter

SolarEdge Technologies Ltd.

25 kW Total Inverter Rating

1 x SE25K-RW00IBNJ4

Power Optimizer

SolarEdge Commercial Power Optimiser with 0.10m Input

35 x S1000-1GM4MBT

Warranties: 25 Year Panel Product Warranty, 30 Year Panel Performance Warranty, 12 Year Inverter Product Warranty

Environmental Benefits

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



Each Year

15%

Consumption Offset

7^{tons}

of CO₂ reduced per year

Over System Lifetime

222,460^{km}

Car distance avoided
(lifetime)

1,430

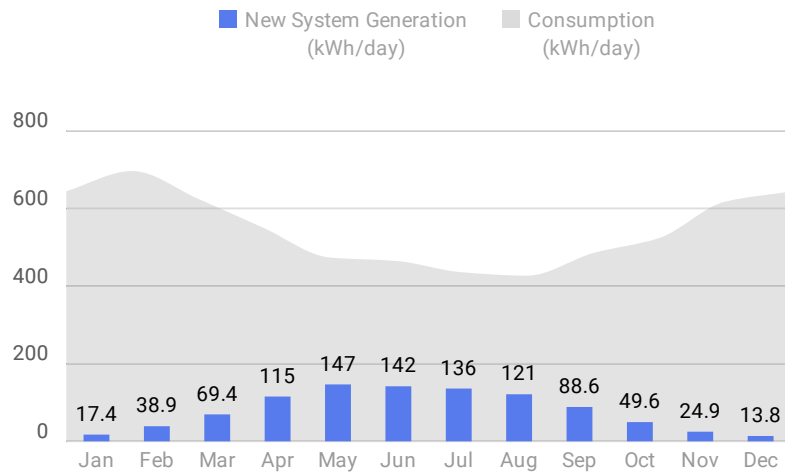
Trees planted

159

Long haul flights
avoided

System Performance

15%
Energy From Solar



96%
Self Consumption

4%
Export to Grid

System Performance Assumptions: System Total losses: 10.2%, Inverter losses: 2.0%, Optimizer losses: 1.2%, Shading losses: 0%, Performance Adjustment: 0%, Output Calculator: System Advisor Model 2020.02.29.r2. Panel Orientations: 70 panels with Azimuth 192 and Slope 6.

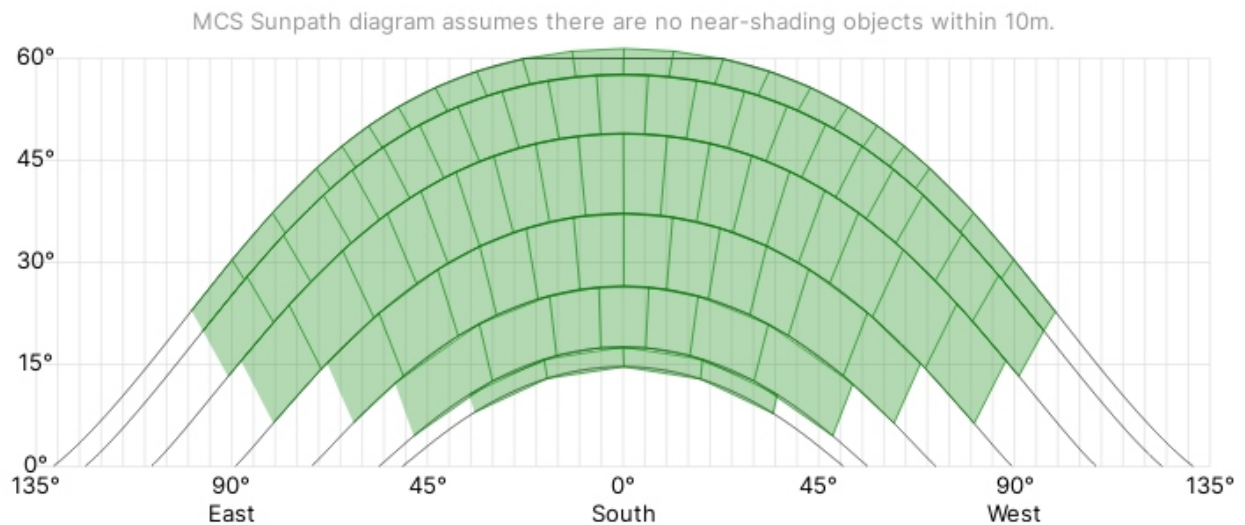
The MCS output (MIS 3002) and self-consumption (MGD 003) calculation methodology was not used in calculating the numbers in the table below. An alternative calculator System Advisor Model 2020.02.29.r2 was used.

A. Installation data		
Installed capacity of PV system - kWp (stc)	35.000	kWp
Orientation of the PV system - degrees from South	Group 1: 70 panels with Orientation: 10 °	°
Inclination of system - degrees from horizontal	Group 1: 70 panels with Tilt: 6°	°
Postcode region	7E	
B. Performance calculations		
kWh/kWp (Kk)	839.6	kWh/kWp
Shade Factor (SF)	1.000	
Estimated annual output (kWp x Kk x SF)	29,388	kWh
C. Estimated PV self-consumption - PV Only		

Assumed annual electricity consumption, kWh	200,000.00	kWh
Assumed annual electricity generation from solar PV system, kWh	29,388	kWh
Expected solar PV self-consumption (PV Only)	28,186.93	kWh
Grid electricity independence / Self-sufficiency (PV Only)	14.09	%

Sunpath Diagram

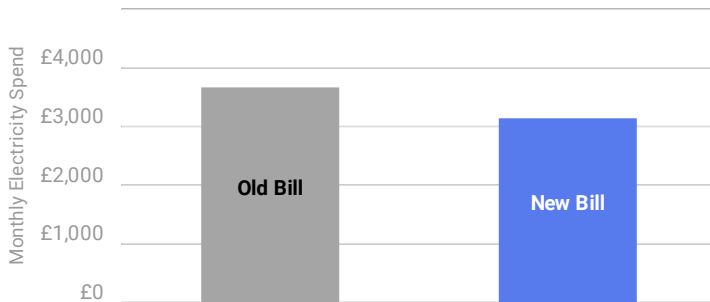
Disclaimer: The shade mask mapped onto the sunpath diagram is based off the field of view from a point in the center of the array. This means that the shade mask shown will only capture the shading experienced at the array center point, and will not reflect the shading casted onto other locations on the array.



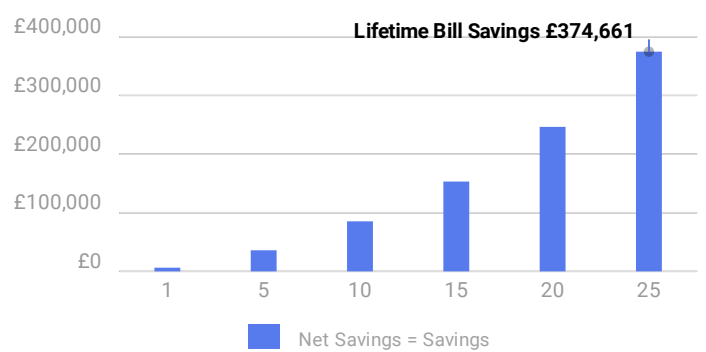
Existing system modelled with, less than a year old

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	538	19,976	19,438	0	0	4,395	4,276	118
Feb	1,089	19,503	18,414	0	0	4,291	4,051	240
Mar	2,152	19,377	17,226	0	0	4,263	3,790	473
Apr	3,463	16,490	13,073	46	5	3,628	2,871	756
May	4,546	14,683	10,437	299	30	3,230	2,266	964
Jun	4,256	13,951	9,933	238	24	3,069	2,161	908
Jul	4,216	13,510	9,668	374	37	2,972	2,090	883
Aug	3,759	13,234	9,691	216	22	2,911	2,110	801
Sep	2,657	14,556	11,928	28	3	3,202	2,621	581
Oct	1,537	16,237	14,700	0	0	3,572	3,234	338
Nov	746	18,525	17,779	0	0	4,076	3,911	164
Dec	428	19,956	19,528	0	0	4,390	4,296	94

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 200000 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 <i>All Day Mon-Sun</i>	£0.22 / kWh
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Smart Export Guarantee

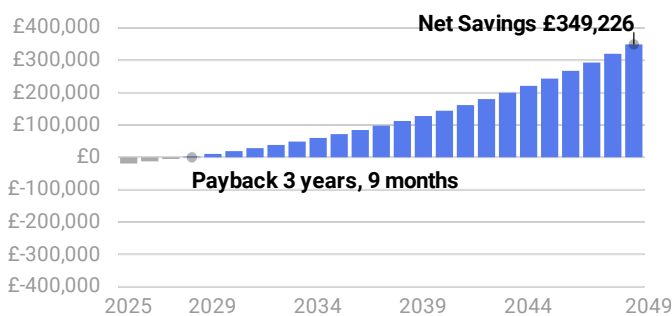
rate 0 <i>All Day Mon-Sun</i>	£0.10 / kWh
---	-------------

Fixed Charges	
Fixed Charge	£0.00 / day

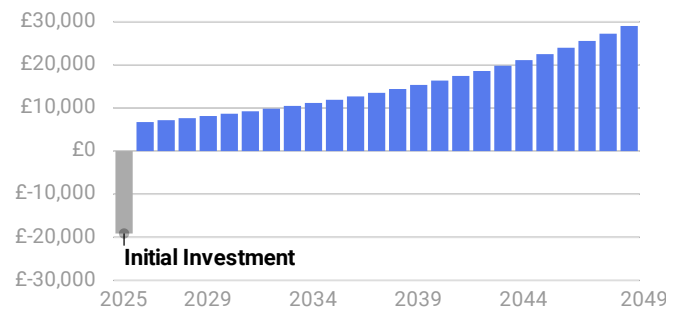
Net Financial Impact Cash

$$\begin{array}{rcl} \text{£374,660} & - & \text{£25,434} = \text{£349,226} \\ \text{Utility Bill Savings} & & \text{Net System Cost} \quad \text{Estimated Net Savings} \end{array}$$

Cumulative Savings From Going Solar



Annual Savings From Going Solar



£154,844

Net Present Value

4 Years
2 Months

Discounted Payback
Period

1,373%

Total Return on
Investment

31.2%

Rate of Return on
Investment

Year	Electricity Consumption (kWh)	Solar Generation (kWh)	Utility Bill (before solar) (£)	Utility Bill (after solar) (£)	Annual Savings (from solar) (£)	System Costs (Net of Dealer Incentives) (£)	Customer Incentives (Upfront) (£)	Net Savings (£)	Cumulative Impacts (£)
2025	200,000	29,388	44,000	37,679	6,321	25,434	0	(19113)	(19113)
2026	200,000	29,270	47,080	40,349	6,731	0	0	6731	(12381)
2027	200,000	29,152	50,376	43,207	7,169	0	0	7168	(5213)
2028	200,000	29,035	53,902	46,267	7,635	0	0	7635	2422
2029	200,000	28,917	57,675	49,542	8,133	0	0	8133	10555
2030	200,000	28,800	61,712	53,048	8,664	0	0	8663	19219
2031	200,000	28,682	66,032	56,802	9,230	0	0	9230	28449
2032	200,000	28,565	70,654	60,821	9,834	0	0	9833	38282
2033	200,000	28,447	75,600	65,122	10,478	0	0	10477	48760
2034	200,000	28,330	80,892	69,728	11,164	0	0	11164	59925
2035	200,000	28,212	86,555	74,658	11,897	0	0	11896	71821
2036	200,000	28,094	92,613	79,936	12,677	0	0	12677	84499
2037	200,000	27,977	99,096	85,587	13,510	0	0	13509	98008
2038	200,000	27,859	106,033	91,636	14,397	0	0	14397	112406

Year	Electricity Consumption (kWh)	Solar Generation (kWh)	Utility Bill (before solar) (£)	Utility Bill (after solar) (£)	Annual Savings (from solar) (£)	System Costs (Net of Dealer Incentives) (£)	Customer Incentives (Upfront) (£)	Net Savings (£)	Cumulative Impacts (£)
2039	200,000	27,742	113,456	98,112	15,344	0	0	15343	127749
2040	200,000	27,624	121,397	105,045	16,352	0	0	16352	144102
2041	200,000	27,507	129,895	112,467	17,428	0	0	17427	161530
2042	200,000	27,389	138,988	120,414	18,574	0	0	18573	180103
2043	200,000	27,272	148,717	128,921	19,796	0	0	19795	199899
2044	200,000	27,154	159,127	138,029	21,098	0	0	21097	220997
2045	200,000	27,037	170,266	147,780	22,486	0	0	22485	243483
2046	200,000	26,919	182,185	158,220	23,965	0	0	23965	267448
2047	200,000	26,801	194,938	169,396	25,542	0	0	25541	292990
2048	200,000	26,684	208,583	181,361	27,222	0	0	27222	320212
2049	200,000	26,566	223,184	194,171	29,014	0	0	29013	349226

Existing system modelled with 0 panels, 0 kW in total.

Existing system performance: shading losses: 0%, other losses: 0%

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: 5.0%

Quotation

Payment Option: Cash

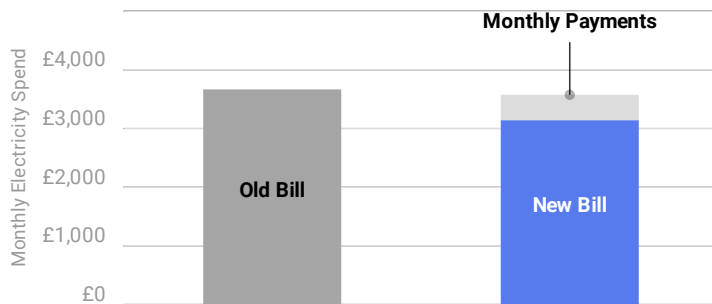
70 x Hengdian Group DMEGC Magnetics 500 Watt Panels (DM500M10RT-B60HBB) 1 x SE25K-RW00IBNJ4 (SolarEdge Technologies Ltd.) 35 x S1000-1GM4MBT	
Total System Price	£25,434.25 Excluding £0.00 VAT
Purchase Price	£25,434.25 Including £0.00 VAT

Price excludes Retailer Smart Meter should you want us to install your Smart Meter it will be an additional cost.

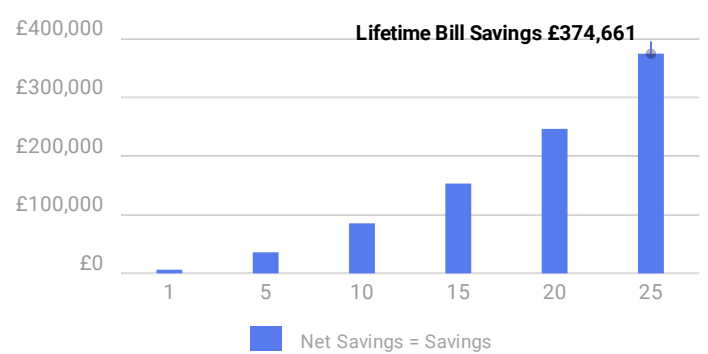
This proposal is valid until None.

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	538	19,976	19,438	0	0	4,395	4,276	118
Feb	1,089	19,503	18,414	0	0	4,291	4,051	240
Mar	2,152	19,377	17,226	0	0	4,263	3,790	473
Apr	3,463	16,490	13,073	46	5	3,628	2,871	756
May	4,546	14,683	10,437	299	30	3,230	2,266	964
Jun	4,256	13,951	9,933	238	24	3,069	2,161	908
Jul	4,216	13,510	9,668	374	37	2,972	2,090	883
Aug	3,759	13,234	9,691	216	22	2,911	2,110	801
Sep	2,657	14,556	11,928	28	3	3,202	2,621	581
Oct	1,537	16,237	14,700	0	0	3,572	3,234	338
Nov	746	18,525	17,779	0	0	4,076	3,911	164
Dec	428	19,956	19,528	0	0	4,390	4,296	94

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 200000 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 Mon-Sun

£0.22 / kWh

Smart Export Guarantee

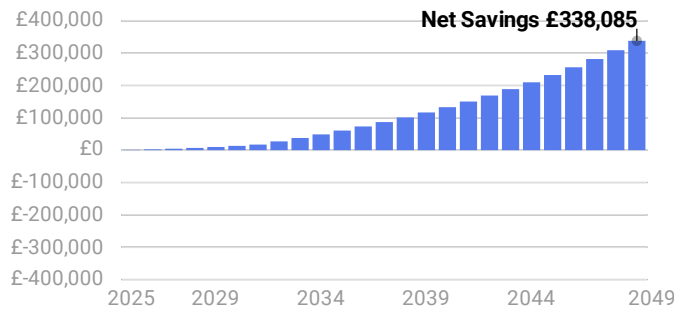
rate 0

All Day Mon-Sun

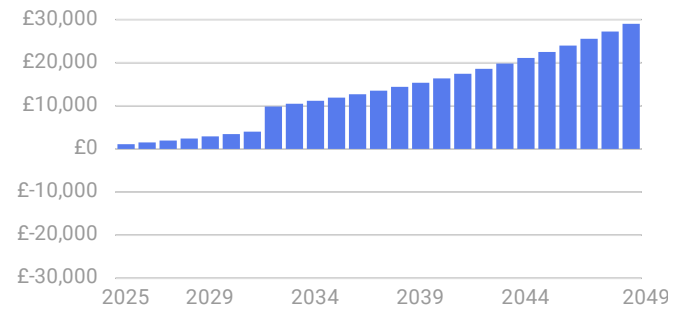
£0.10 / kWh

Fixed Charges	
Fixed Charge	£0.00 / day

Cumulative Savings From Going Solar



Annual Savings From Going Solar



£150,045

Net Present Value

5 Years
10 Months

Discounted Payback
Period

924%

Total Return on
Investment

23.4%

Rate of Return on
Investment

Year	Electricity Consumption (kWh)	Solar Generation (kWh)	Utility Bill (before solar) (£)	Utility Bill (after solar) (£)	Annual Savings (from solar) (£)	System Costs (Net of Dealer Incentives) (£)	Customer Incentives (Upfront) (£)	Net Savings (£)	Cumulative Impacts (£)
2025	200,000	29,388	44,000	37,679	6,321	5,225	0	1096	1096
2026	200,000	29,270	47,080	40,349	6,731	5,225	0	1506	2602
2027	200,000	29,152	50,376	43,207	7,169	5,225	0	1943	4545
2028	200,000	29,035	53,902	46,267	7,635	5,225	0	2410	6956
2029	200,000	28,917	57,675	49,542	8,133	5,225	0	2907	9864
2030	200,000	28,800	61,712	53,048	8,664	5,225	0	3438	13303
2031	200,000	28,682	66,032	56,802	9,230	5,225	0	4005	17308
2032	200,000	28,565	70,654	60,821	9,834	0	0	9833	27141
2033	200,000	28,447	75,600	65,122	10,478	0	0	10477	37619
2034	200,000	28,330	80,892	69,728	11,164	0	0	11164	48784
2035	200,000	28,212	86,555	74,658	11,897	0	0	11896	60680
2036	200,000	28,094	92,613	79,936	12,677	0	0	12677	73358
2037	200,000	27,977	99,096	85,587	13,510	0	0	13509	86867
2038	200,000	27,859	106,033	91,636	14,397	0	0	14397	101265
2039	200,000	27,742	113,456	98,112	15,344	0	0	15343	116608
2040	200,000	27,624	121,397	105,045	16,352	0	0	16352	132961
2041	200,000	27,507	129,895	112,467	17,428	0	0	17427	150388

Year	Electricity Consumption (kWh)	Solar Generation (kWh)	Utility Bill (before solar) (£)	Utility Bill (after solar) (£)	Annual Savings (from solar) (£)	System Costs (Net of Dealer Incentives) (£)	Customer Incentives (Upfront) (£)	Net Savings (£)	Cumulative Impacts (£)
2042	200,000	27,389	138,988	120,414	18,574	0	0	18573	168962
2043	200,000	27,272	148,717	128,921	19,796	0	0	19795	188758
2044	200,000	27,154	159,127	138,029	21,098	0	0	21097	209856
2045	200,000	27,037	170,266	147,780	22,486	0	0	22485	232342
2046	200,000	26,919	182,185	158,220	23,965	0	0	23965	256307
2047	200,000	26,801	194,938	169,396	25,542	0	0	25541	281849
2048	200,000	26,684	208,583	181,361	27,222	0	0	27222	309071
2049	200,000	26,566	223,184	194,171	29,014	0	0	29013	338085

Existing system modelled with 0 panels, 0 kW in total.

Existing system performance: shading losses: 0%, other losses: 0%

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: 5.0%

Quotation

Payment Option: Smart Ease 7 Year Hire Purchase

MONTHLY PAYMENT BY TERM (EXCL. GST)	
TERM (MONTHS)	84
MONTHLY PAYMENTS	£435.42

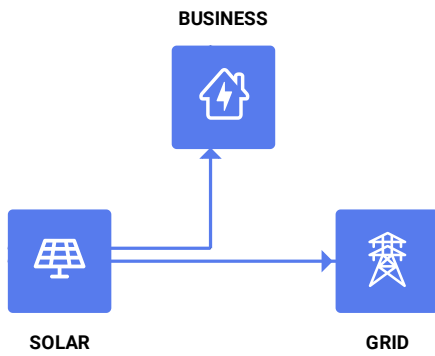
Total System Price	£25,434.25 Excluding £0.00 VAT
Hire Purchase Amount	£25,434.25
Hire Purchase Term	7 Years
First Month Payment Includes 1 month of Hire Purchase Repayment plus £0.00 of VAT	£435.42
Monthly Hire Purchase Repayments Over 7 Years	£435.42

Price excludes Retailer Smart Meter should you want us to install your Smart Meter it will be an additional cost.

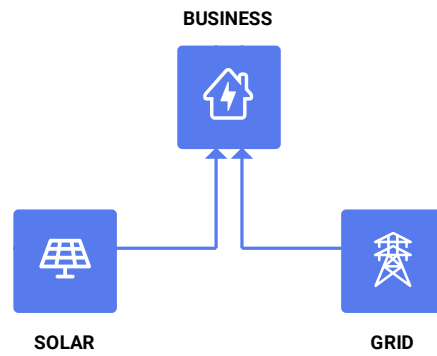
This proposal is valid until None.

How your system works

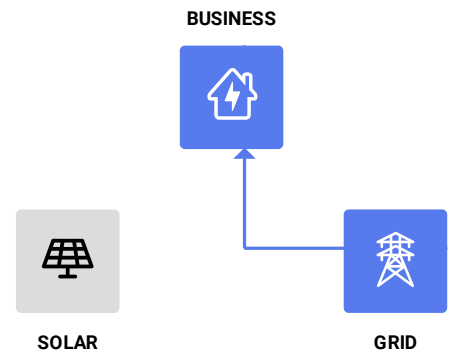
Generating Excess Solar



Partially Offset Usage



Night



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