

PREMIUM
POWERFUL
PERFORMANCE



ABOUT SAPPHIRE SOLAR

Sapphire Solar is a 100% Australian owned manufacturer of renewable energy products.

Australia is a country with long history in the Solar Energy sector. PERC Technology was invented there while in 1985 The University of NSW's Centre for Photovoltaic Engineering makes history when they create silicon cells with 20% efficiency.

Since 2013 we have been a manufacturer of a range of premium A-Grade solar panels, inverters and battery storage, designed specifically for the Australian and **European** domestic and commercial markets. Our products are designed using state-of-the-art technology that provide the ultimate in performance, reliability and flexibility to suit a range of climates and energy demands.

All of our products are backed by comprehensive quality control processes and industry leading warranties that are serviced locally and efficiently with support from our Australian & UK offices. Together with our highly experienced sales and technical teams, Sapphire Solar continues to be a market leader in the solar and energy storage revolution.

One company, seamless integration, complete peace of mind.

WE BELIEVE THAT FREE ENERGY
IS EVERYONE'S RIGHT





THE FUTURE OF RENEWABLE ENERGY

Clean energy that's cheap and virtually endless - this is the simple premise that has driven the worldwide solar revolution over the last decade.

By 2050, it is predicted that solar power will become the world's largest electricity producer.

Energy storage is the next stage in this revolution. A solar power system's maximum energy output occurs when its fuel source - sunlight - is at its peak. But this isn't always when a household or business needs the energy and so any excess power generated goes to waste.

The ability to capture renewable energy for use at peak times when it is in high demand and expensive is essential in unlocking its ultimate value. Battery technology has responded to this challenge and a range of options are now available to complement both domestic and commercial PV systems.

HAVING ENERGY AVAILABLE WHENEVER
AND WHEREVER YOU NEED IT - THIS IS THE
ABILITY TO TRULY POWER YOURSELF.



QUALITY ASSURANCE GUARANTEED

A-Grade Quality Assurance

Sapphire Solar understands that building a high-quality product is about being at the heart of the production process and getting it right from the start.

On all of our products we offer the Sapphire Solar A-Grade Quality Assurance:

- A-Grade Componentry
- A-Grade Procedures
- A-Grade Testing

INTERNATIONAL CERTIFICATIONS

Sapphire Solar's manufacturing plants, its processes and end products have all achieved certification by national and international regulators following strict audit processes.





QUALITY ASSURANCE OUR PROMISE TO YOU

STATE-OF-THE-ART MANUFACTURING

Our assembly process incorporates industry leading robotic automation ensuring that every product is manufactured consistently and to the highest standard. Overseen by our on-site engineers and incorporating testing programs that go above

and beyond international standards, this process enables us to have 100% control over our production, delivering products that display exceptional performance, safety and durability in a range of challenging environments.

EXCEPTIONAL PANEL WARRANTIES

Premium. Performance. Peace of Mind.

Due to our selection of premium componentry, automated manufacturing and strict QA processes, we are able to offer comprehensive warranties across our entire panel range:

- ✓ 25 years product warranty
- ✓ 12 years performance warranty (90% output)
- ✓ 25 years performance warranty (80% output)

Sapphire Solar Community Solar Farm - Reach, UK





290-300W FULL BLACK MONOCRYSTALLINE PANELS WITH PERC TECHNOLOGY

285W FULL BLACK MONOCRYSTALLINE PANELS

265-280W POLYCRYSTALLINE PANELS

- ✓ Sleek double-black finish (285-300W) or standard silver (265-280W) modules
- ✓ State-of-the-art PERC technology in the 290-300W module range
- ✓ High module efficiency
- ✓ Waterproof (IP67 rated) junction boxes
- ✓ Premium anti-PID cell technology
- ✓ Anti-UV backsheet for superior weather resistance and long-term durability
- ✓ 25 year product warranty +25 year performance warranty

STRING OPTIMISATION WITH IQ-SAFE

SAPPHIRE SOLAR IQ-SAFE

Comprising the most advanced components available and backed with our complete 25 year Product & Performance Warranty, there is no better solution available when considering safe & efficient energy generation.



OPTIMIZATION

TS4-0
TS4-L

BENEFITS

- Enhanced safety through rapid AC shutdown
- Increased energy yield
- Greater design flexibility
- Shade and age tolerance
- Maximized roof usage
- Module-level monitoring
- Save on BOS/installation with longer strings
- Use single MPPT inverters instead of dual

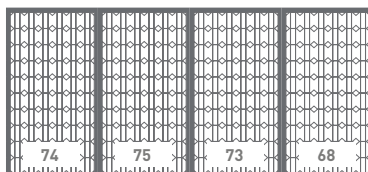
Increase your energy harvest

Dramatic yield benefits of 35%+ are seen in shaded or soiled conditions but even perfect arrays under real-world conditions are subject to dust, thermal gradients, clouds, and silicon aging, where iQ-SAFE can boost string output.

Enhanced safety

Sapphire iQ-SAFE panels have integrated safety features that mitigate high-voltage risks by using automated module-level shut-down when required, maximising protection of the home/commercial premises as well as the solar installation itself.

Optimal Conditions (No Soiling or Shading)

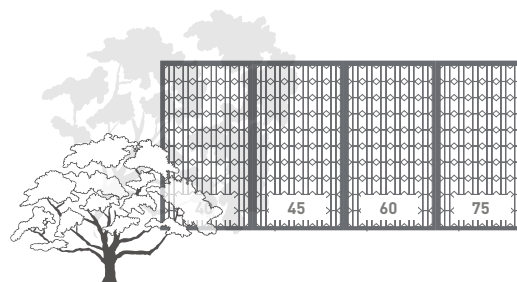


Without optimiser output:
 $68 + 68 + 68 + 68 = 272W$

With optimiser output:
 $74 + 75 + 73 + 68 = 290W$

Yield Gain = 6.25%

Soiling or Shading



Without optimiser output:
 $40 + 40 + 40 + 40 = 160W$

With optimiser output:
 $40 + 45 + 60 + 75 = 220W$

Yield Gain = 37.5%

Tigo®



COMMERCIAL SOLUTIONS

Sapphire Solar Commercial Systems - Victoria, AUS

Giving the power back to your business!

Sapphire Solar's guiding philosophy is that "free energy is everyone's right" – naturally, this principle extends into the Commercial and Industrial sectors.

At Sapphire Solar we understand the costs of running a business. As electricity costs continue to rise and equipment costs continue to decline, energy storage solutions are becoming an attractive economic option for more and more businesses keen to preserve their bottom line.

Investing in solar and storage for business provides insurance against energy price rises, reduces business risk and enables the focus to remain increasing their profit margin rather than paying for energy – **Power Yourself!**

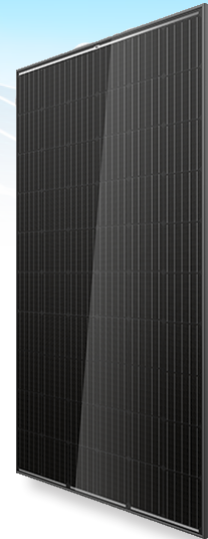
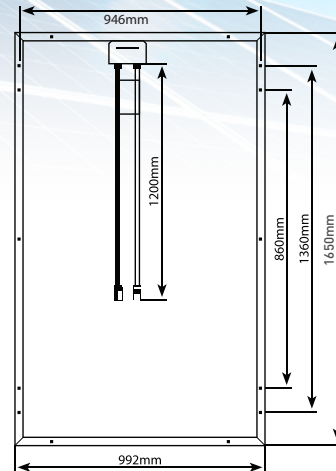
WHAT'S THE BUSINESS CASE FOR COMMERCIAL SOLAR + STORAGE?

- ✓ Protect your business from grid blackouts
- ✓ Solar equipment costs have reduced so much and rebates are declining - the time to invest is NOW
- ✓ Cheaper electricity costs as soon as your system is installed
- ✓ Future-proof against energy price rises
- ✓ Competitive financing options are available meaning little or no up front capital outlay is required

TECHNICAL DATA

**285-300W
MONOCRYSTALLINE
FULL BLACK**

TECHNICAL INFORMATION



ELECTRICAL CHARACTERISTICS

Rated Power at STC (P _{mpp})	W	285	290 (+PERC)	295 (+PERC)	300 (PERC)
Positive Power Tolerance	W	0-3	0-3	0-3	0-3
Maximum Power at STC	W	288	293	298	303
Cell Efficiency	%	20.5	21.4	21.7	22.0
Module Efficiency (%)	%	17.6	17.9	18.2	18.7
Maximum Rated Power Voltage (V _{mpp})	V	21.8	32.2	32.4	32.9
Maximum Rated Power Current (I _{mpp})	A	8.70	8.75	9.12	9.16
Open Circuit Voltage (V _{oc})	V	38.6	39.0	39.7	39.9
Short Circuit Current (I _{sc})	A	9.38	9.46	9.64	9.71
Maximum System Voltage	V	1000	1000	1000	1000
Maximum Series Fuse Rating	A	15A	15A	15A	15A
Fire Rating		Class A	Class A	Class A	Class A

MECHANICAL CHARACTERISTICS

Solar Cells	Polycrystalline 156.75mm x 156.75mm (60 cells)
Dimensions	1650x 992 x 35mm
Weight	19.0kg
Front Glass	3.2mm tempered, antireflective glass
Frame	Anodized/electrophoretic aluminium alloy
Cables	4.0mm ² , symmetrical legths 1.2m
Connector	Genuine MC4
Junction Box	IP67 rated fully sealed

TEMP. CHARACTERISTICS

	285W	290-300W
Temperature Coefficient P _{max}	-0.42%/°C	-0.39%/°C
Temperature Coefficient V _{oc}	-0.32%/°C	-0.32%/°C
Temperature Coefficient I _{sc}	+0.04%/°C	+0.04%/°C
Operating temperature	-40 ~ +85°C	-40 ~ +85°C
NOCT (Nominal Operation Cell Temperature)	45°C ± 2°C	45°C ± 2°C

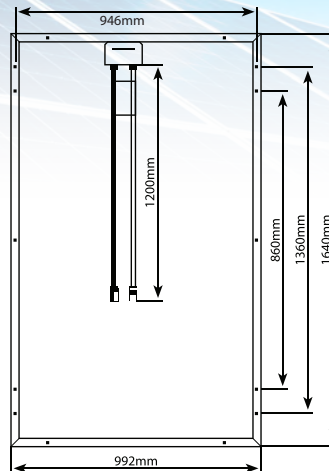
PACKAGING CONFIGURATION

Container	40' GP
Pieces per Pallet	30
Pallets per Container	28



**265-280W
POLYCRYSTALLINE**

TECHNICAL INFORMATION



ELECTRICAL CHARACTERISTICS

Rated Power at STC (Pmpp)	W	265	270	275	280
Positive Power Tolerance	W	0-3	0-3	0-3	0-3
Maximum Power at STC	W	268	273	278	283
Cell Efficiency	%	18.7	19.0	19.3	19.6
Module Efficiency [%]	%	16.4	16.8	17.0	17.3
Maximum Rated Power Voltage (Vmpp)	V	31.7	32.1	32.5	32.9
Maximum Rated Power Current (Impp)	A	8.37	8.42	8.47	8.52
Open Circuit Voltage (Voc)	V	37.6	37.9	38.2	38.5
Short Circuit Current (Isc)	A	9.28	9.38	9.47	9.56
Maximum System Voltage	V	1000	1000	1000	1000
Maximum Series Fuse Rating	A	15A	15A	15A	15A
Fire Rating		Class C	Class C	Class C	Class C

MECHANICAL CHARACTERISTICS

Solar Cells	Polycrystalline 156mm x 156mm (60 cells)
Dimensions	1640 x 992 x 35mm
Weight	19.0kg
Front Glass	3.2mm tempered, antireflective glass
Frame	Anodized/electrophoretic aluminium alloy
Cables	4.0mm ² , symmetrical lengths 1.2m
Connector	Genuine MC4
Junction Box	IP67 rated fully sealed

TEMPERATURE CHARACTERISTICS

Temperature Coefficient Pmax	-0.42%/°C
Temperature Coefficient Voc	-0.32%/°C
Temperature Coefficient Isc	+0.04%/°C
Operating temperature	-10 ~ +85°C
NOCT (Nominal Operation Cell Temperature)	45°C ± 2°C

PACKAGING CONFIGURATION

Container	40' GP
Pieces per Pallet	30
Pallets per Container	28



LITHIUM BATTERY GEM SERIES 2400



WE MAKE THINGS WORK THE WAY
YOU WISH THEY WOULD.

- LiFePO₄ provides the safest and most reliable Lithium technology
- 2.4kWh / 90% DOD
- Consistent performance over wide temperature range
- In-built state-of-the-art Battery Management System
- Wall-mounted convenient installation
- 6000cycles/ 10 year service life
- 5-year warranty



LITHIUM BATTERY

GEM SERIES 2400

GS2400

Nominal Parameters

Voltage	48Vdc
Capacity	50.4Ah
Energy	2.4kWh
Warranty	5 years
Dimensions (W/H/D)	478/132/410mm
Weight	28kg

Basic Parameters

Life time (25°C)	10 years
Life cycles (90% DOD, 25°C)	6000 cycles
Storage time / temperature	6 months @ 25°C; 3 months @ 35°C; 1 month @ 45°C
Operation temperature	-20°C to 60°C @60+/-25% Relative Humidity
Storage temperature	0°C to 45°C @60+/-25% Relative Humidity
Lithium Battery Standard	UL 1642
EMC standard	IEC 61000
Enclosure protection rating	IP20

Electrical Parameters

Operation voltage	45-54Vdc
Max. charging voltage	54Vdc
Max. charging current	48A
Max. discharging current	48A
Max. power	2.4KW
Peak power (for 3 secs)	3.5KW

Communication Parameters

Network interface	RS485
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Warranty valid when battery is used in accordance with specified warranty conditions

HYBRID INVERTER GEM SERIES



WE MAKE THINGS WORK THE WAY YOU WISH THEY WOULD.

- Most advanced inverter on the market
- Continuous operation during grid blackouts (built-in EPS)
- Water and dust proof design (IP65 rated)
- Extremely low noise (no fan)
- Exceptional inverter max. efficiency of 97.10%
- WIFI remote monitoring via user-friendly App
- Off-site remote control of inverter via SCADA technology
- Wide voltage range
- Flexible export restriction mode
- Full demand response mode (DRM-Compliant)
- Engineered to maximise performance of Sapphire Solar Batteries
- 10 year warranty as standard
- Premium componentry:



tyco
SimplexGrinnell

HITACHI Panasonic

infineon

**TEXAS
INSTRUMENTS**

Our partner in the Netherlands:



Zoncomfort - Urkhovenseweg 43 - 5641 kb - Eindhoven
www.zoncomfort.nl - info@zoncomfort.nl - +31 (0)85-4018239

SAPPHIRE SOLAR AUS

1201/401 Docklands
Dve, Docklands, VIC
Australia, 3008
P : +61 1300 308 751

SAPPHIRE SOLAR UK

2nd Floor, Hygeia House
66 College Road
Harrow Middlesex HA1 1BE
P : +44 07943388634