



# Neostar 2S

Mono-Glass Module

## 440W-460W

Second Generation  
Comprehensive Upgrade:

 **Partial Shading Optimisation**

 **Better Temperature Coefficient**

 **High Temperature Restriction**

 **Micro-crack Resistance**

 **Higher Power**

 **Lower BOS**

 **Full Black Design**



Product  
Warranty



Performance  
Warranty



reddot winner 2023



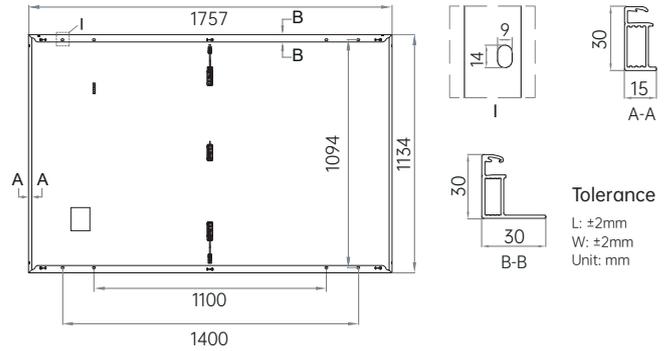
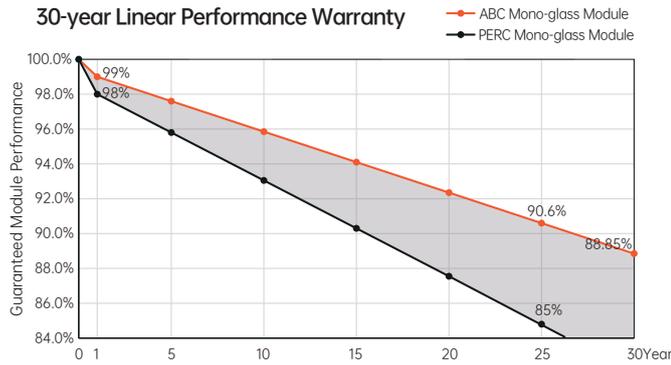
Munich RE 

**460W**  
Output

**23.1%**  
Efficiency

**≤1%**  
First-year Degradation

**≤0.35%**  
Annual Degradation from Year 2-30



Electrical Characteristics (STC: AM1.5 1000W/m <sup>2</sup> 25°C NOCT: AM1.5 800W/m <sup>2</sup> 20°C 1m/s)										Power Tolerance: 0~ + 3%	
Module Type	AIKO-A440-MAH54Mb		AIKO-A445-MAH54Mb		AIKO-A450-MAH54Mb		AIKO-A455-MAH54Mb		AIKO-A460-MAH54Mb		
	STC	NOCT									
P <sub>max</sub> [W]	440	331	445	335	450	339	455	343	460	346	
V <sub>oc</sub> [V]	40.49	38.24	40.59	38.33	40.69	38.43	40.79	38.52	40.89	38.62	
V <sub>mp</sub> [V]	33.50	31.64	33.60	31.73	33.70	31.83	33.80	31.92	33.90	32.02	
I <sub>sc</sub> [A]	13.91	11.25	14.02	11.33	14.12	11.42	14.22	11.50	14.32	11.58	
I <sub>mp</sub> [A]	13.14	10.49	13.25	10.57	13.36	10.66	13.47	10.75	13.57	10.83	
<b>Module Efficiency</b>	<b>22.1%</b>		<b>22.3%</b>		<b>22.6%</b>		<b>22.8%</b>		<b>23.1%</b>		

Mechanical Specification	
Cell Type	N-Type ABC
Front Cover Mono glass	3.2 mm tempered glass
Frame	Black anodized aluminum
Cable	4mm <sup>2</sup> (IEC) 12AWG(UL) 1200mm
No. of Cells	108(6*18)
Junction Box	IP68,3 bypass diodes
Connector	MC4-Evo2
Weight	21.5kg
Dimension	1757*1134*30mm
Package Detail	36pcs per pallet / 216pcs per 20'GP / 936pcs per 40'HC

Temperature Ratings (STC)	
Temperature Coefficient of I <sub>sc</sub>	+ 0.05%/ °C
Temperature Coefficient of V <sub>oc</sub>	- 0.22%/ °C
Temperature Coefficient of P <sub>max</sub>	- 0.26%/ °C

Installation Guide	
Operation Temperature	-40°C - +85°C
Maximum Series Fuse Rating	25A
Protection Class	Class II
V <sub>oc</sub> and I <sub>sc</sub> Tolerance	±3%
Maximum System Voltage	DC1500V
Maximum Static Loading	Front 5400Pa Back 2400Pa
Hail Test	25 mm diameter hail at 23 m/s
Fire Rating	IEC Class C





The third generation of the GivEnergy Hybrid Inverter is a battery and solar inverter in one unit.

It can be coupled directly with solar panels to generate usable electricity in the property, as well as store any excess energy for later use in a battery. The Hybrid Inverter aims to minimise export by storing excess energy in the battery during generation hours. Additionally it will minimise import by discharging to meet demand in the property.



**In-built WiFi and LAN**

Includes in-built WiFi and LAN for a hard-wired network connection.



**Higher Charge/Discharge Rate**

Increased efficiency, higher discharge rates of up to 10kW.



**Flexible Rate Tariff**

Charge the battery off-peak when it's cleaner, greener and less costly then discharge the battery during peak times for maximum saving.



**12 Year Warranty**

Supplied with a full manufacturer's warranty. Our UK team are on hand to help you should any issues arise.

# Hybrid Inverter 8.0

## Gen 3

### INPUT DATA (PV)

Max. DC Input Power	12000W
Start-up Voltage	80V
Max. PV Voltage	600V
MPPT Range	90V - 550V
Nominal Voltage	230V
Max. Short Circuit Current	30A/30A
Max. Input Current (per string)	25A/25A
MPPT Tracker / No. of Strings per MPPT Tracker	2/2

### OUTPUT DATA (AC)

Nominal AC Output Power	8000W
Max. Apparent Power Output to Utility Grid	10000VA
Max. Output Current	37A
Nominal Voltage / Range	230VAC
Frequency Range	50 / 60 Hz; ±5 Hz
Power Factor (Full Load)	>0.99
Power Factor Range	0.8 Lagging... 0.8 Leading
THDI (Nominal Power)	<3%
AC Connection	Single Phase

### BATTERY

Battery Type	LiFePO <sub>4</sub>
Battery Voltage Range	120-510V
Nominal Voltage	340VDC
Charge* / Discharge Current	25A / 25A
Max. Charge / Discharge Power	8000W / 8500W
Communication Interface	CAN

### BACKUP TERMINAL PARAMETER (AC)

Nominal AC Output Power	8000W
Nominal Voltage	230VAC
Max. Output Current	37A
Nominal Frequency	50 Hz
Automatic Switch Time	10ms
THDv (Linear Load)	<3%
Pass-through current	50A

\*Charge current increased to 70A via firmware update

\*\*Charging at lower temperatures may be reduced

## PROTECTION DEVICES

DC Reverse Polarity Protection	Yes
DC Switch Rating for each MPPT	Yes
Output Overcurrent Protection	Yes
Output Overvoltage Protection Varistor	Yes
Ground Fault Monitoring	Yes
Grid Monitoring	Yes
Max. Inrush Current	30A Peak
Max. Output Fault Current	40A Peak
Max. Output Overcurrent Protection	25A RMS
Earth Leakage Current Monitoring	Yes
AFCI	Yes

## GENERAL DATA

Dimensions	588H x 214D x 480W (mm)
Weight	36Kg
Charge / Discharge Efficiency	96% / 96%
PV Max. Efficiency	97.6%
Euro Efficiency	97%
MPPT Efficiency	99.9%
Protection Class	IP65
Noise Emission (Typical)	55dB
Operational Temperature (charging)	0°C - 60°C
Operational Temperature (discharging)**	-10°C - 60°C
Relative Humidity	0 ~ 100%, non condensing
Altitude	4000m (derating above 2000m)
Inverter Topology	Transformerless
Self-Consumption	<15W

## FEATURES

Display LCD	LED & APP
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## INTERFACE

Communication	EMS: RS485*1 Meter - RS485*2 Portal - WiFi (USB) or LAN
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## CERTIFICATES AND APPROVALS

G99, G100
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Our stackable battery is designed to work alongside all of our -HV product range.

High voltage BMS allows for greater charge and discharge power running at a lower current, providing higher efficiency than our lesser voltage range.



### Remote Firmware

Control and monitor your Smart System on the move via our GivEnergy Monitoring App and Portal.



### IP65 Rating

Our IP65 rated enclosure gives protection against water and dust. Ideal for lofts and outdoor installation.



### 12 Year Warranty

Supplied with a full manufacturer's warranty. Our UK team are on hand to help you should any issues arise.



### Stackable Design

Need a larger capacity? Modular design allows for multiple units to be installed in parallel.



### High Voltage

High voltage BMS allows for higher increased efficiency in charge and discharging.

# Stackable Batteries HV

## GIV-BAT-20.4-HV

### SPECIFICATIONS

Qty. of Batteries	6
Dimensions	1085H x 380D x 480W (mm)
Weight	226.3Kg
Capacity	20.4 kWh / 51 Ah
Voltage	460VDC
Max. Current*	25A
Technology	LiFePO <sub>4</sub> Cell
IP Grade	IP65
BMS	Robust Multi Point Monitoring BMS Pre Installed
Life Cycling (Optimal: 100% DOD at 25°C)	12 Years
Charging Temperature	0°C - 55°C
Discharging Temperature	-10°C - 55°C
Storage Temperature	-30°C - 60°C
Warranty BTT	Unlimited Cycles / 12 Years
Standard	UN 38.3, IEC61000
Standard Charge/Discharge	0.5C

### ELECTRICAL PARAMETERS

Operating Voltage Range	200 - 600V
Maximum Charging Voltage	525V
Max. Charging / Discharging Current	25A / 25A
Communication Protocols	CAN BUS
Advantages	Stackable, BMS Upgradeable, IP65
Depth of Discharge	100%
Kit Contents	6 x GIV-BAT-3.4-HV 1 x GIV-BAT-HV-KIT

\*Maximum current may vary depending on inverter model.

## GIV-BAT-17.0-HV

### SPECIFICATIONS

Qty. of Batteries	5
Dimensions	935H x 380D x 480W (mm)
Weight	190.8Kg
Capacity	17.0 kWh / 51 Ah
Voltage	384VDC
Max. Current*	25A
Technology	LiFePO <sub>4</sub> Cell
IP Grade	IP65
BMS	Robust Multi Point Monitoring BMS Pre Installed
Life Cycling (Optimal: 100% DOD at 25°C)	12 Years
Charging Temperature	0°C - 55°C
Discharging Temperature	-10°C - 55°C
Storage Temperature	-30°C - 60°C
Warranty BTT	Unlimited Cycles / 12 Years
Standard	UN 38.3, IEC61000
Standard Charge/Discharge	0.5C

### ELECTRICAL PARAMETERS

Operating Voltage Range	200 - 600V
Maximum Charging Voltage	438V
Max. Charging / Discharging Current	25A / 25A
Communication Protocols	CAN BUS
Advantages	Stackable, BMS Upgradeable, IP65
Depth of Discharge	100%
Kit Contents	5 x GIV-BAT-3.4-HV 1 x GIV-BAT-HV-KIT

## GIV-BAT-13.6-HV

### SPECIFICATIONS

Qty. of Batteries	4
Dimensions	785H x 380D x 480W (mm)
Weight	155.3Kg
Capacity	13.6 kWh / 51 Ah
Voltage	307VDC
Max. Current*	25A
Technology	LiFePO <sub>4</sub> Cell
IP Grade	IP65
BMS	Robust Multi Point Monitoring BMS Pre Installed
Life Cycling (Optimal: 100% DOD at 25°C)	12 Years
Charging Temperature	0°C - 55°C
Discharging Temperature	-10°C - 55°C
Storage Temperature	-30°C - 60°C
Warranty BTT	Unlimited Cycles / 12 Years
Standard	UN 38.3, IEC61000
Standard Charge/Discharge	0.5C

### ELECTRICAL PARAMETERS

Operating Voltage Range	200 - 600V
Maximum Charging Voltage	350V
Max. Charging / Discharging Current	25A / 25A
Communication Protocols	CAN BUS
Advantages	Stackable, BMS Upgradeable, IP65
Depth of Discharge	100%
Kit Contents	4 x GIV-BAT-3.4-HV 1 x GIV-BAT-HV-KIT

## GIV-BAT-10.2-HV

## SPECIFICATIONS

Qty. of Batteries	3
Dimensions	635H x 380D x 480W (mm)
Weight	119.8Kg
Capacity	10.2 kWh / 51 Ah
Voltage	230VDC
Max. Current*	25A
Technology	LiFePO <sub>4</sub> Cell
IP Grade	IP65
BMS	Robust Multi Point Monitoring BMS Pre Installed
Life Cycling (Optimal: 100% DOD at 25°C)	12 Years
Charging Temperature	0°C - 55°C
Discharging Temperature	-10°C - 55°C
Storage Temperature	-30°C - 60°C
Warranty BTT	Unlimited Cycles / 12 Years
Standard	UN 38.3, IEC61000
Standard Charge/Discharge	0.5C

## ELECTRICAL PARAMETERS

Operating Voltage Range	200 - 600V
Maximum Charging Voltage	262V
Max. Charging / Discharging Current	25A / 25A
Communication Protocols	CAN BUS
Advantages	Stackable, BMS Upgradeable, IP65
Depth of Discharge	100%
Kit Contents	3 x GIV-BAT-3.4-HV 1 x GIV-BAT-HV-KIT

# INCLUDES FREE BIRD PROTECTION



MRS BROWN

We already had solar panels installed but we're very troubled with pigeons. Deege installed the netting, the men were efficient extremely polite and tidy workers. Delighted to say we have no constant cooing now. Would highly recommend.



**PROTECT BOTH YOUR INVESTMENT & WILDLIFE**



**ENHANCE THE AESTHETICS OF YOUR SYSTEM**



**MINIMISE CLEANING AND MAINTENANCE COSTS**