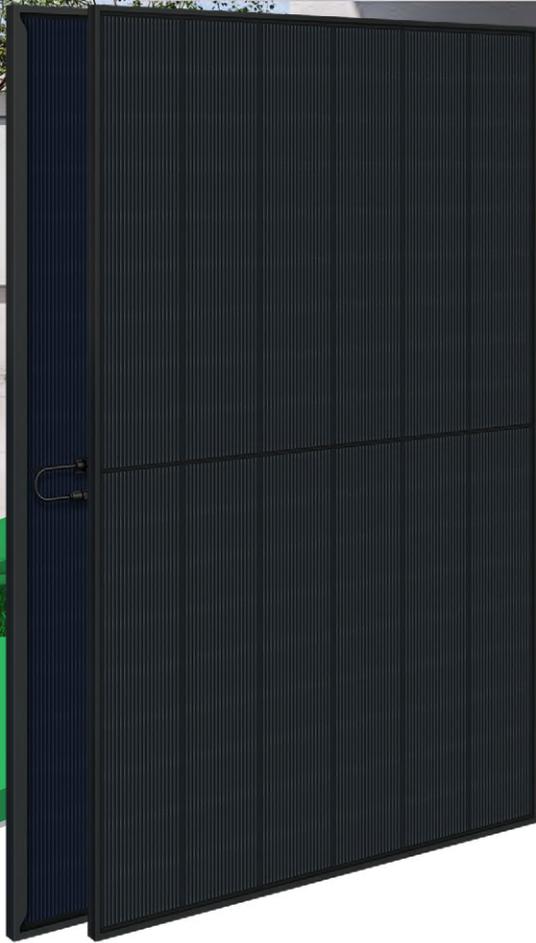




ASTRONERGY



ASTRO N7s

CHSM54RN_s(DG)(BLH)/F-BH
Bifacial Series

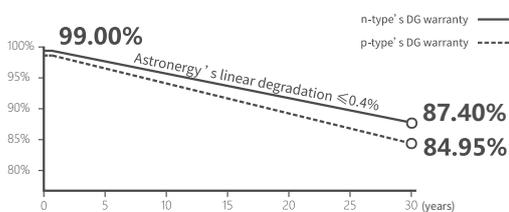
440~460W



Warranty

25 25-year Product Warranty

30 30-year Linear Power Warranty



n-type TOPCon 4.0

Novel upgrade, enhancing module efficiency



ZBB-TF (Tiling Film)

Zero-busbar integrated interconnection



Sleek Design

≤ 2 m² area, easy to transport and install



All-black Technology

Sleek crystalline black appearance, seamlessly blending into rooftops



IEC 61215, IEC 61730
ISO 9001:2015:ISO Quality Management System
ISO 14001:2015:ISO Environment Management System
ISO 45001:Occupational Health and Safety
The first solar company which passed the Nord IEC/TS 62941 certification audit



Tier 1
BloombergNEF



440~460W

POWER RANGE

0~+3%

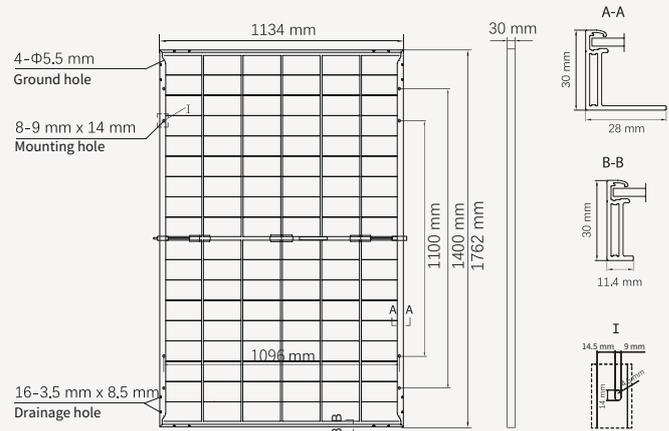
POWER SORTING

23.0%MAX MODULE
EFFICIENCY**≤ 1.0%**FIRST YEAR
POWER DEGRADATION**≤ 0.4%**YEAR 2-30
POWER DEGRADATION

Mechanical Specifications

Outer dimensions (L x W x H)	1762 x 1134 x 30 mm
Cell type	n-type mono-crystalline
No. of cells	108 (6*18)
Frame technology	Aluminum, black anodized
Front / Back glass	1.6+1.6 mm
Cable length (Including connector)	Portrait: (+)350 mm, (-)250 mm; Customized length
Cable diameter (IEC/UL)	4 mm ² / 12 AWG
① Maximum mechanical test load	5400 Pa (front) / 2400 Pa (back)
Connector type (IEC/UL)	HCB40 (Standard) / MC4-EVO2A (Optional)
Module weight	21.5 kg
Packing unit	36 pcs / box
Weight of packing unit (for 40'HQ container)	820 kg
Modules per 40' HQ container	936 pcs (Subject to sales contract)

① Refer to Astronergy crystalline installation manual or contact technical department.
Maximum Mechanical Test Load=1.5×Maximum Mechanical Design Load.



Electrical Specifications

STC: Irradiance 1000W/m², Cell Temperature 25° C, AM=1.5

	440	445	450	455	460
Rated output (P _{mpp} / Wp)					
Rated voltage (V _{mpp} / V)	33.05	33.22	33.39	33.56	33.73
Rated current (I _{mpp} / A)	13.31	13.40	13.48	13.56	13.64
Open circuit voltage (V _{oc} / V)	39.00	39.20	39.40	39.60	39.80
Short circuit current (I _{sc} / A)	14.10	14.19	14.28	14.36	14.45
Module efficiency	22.0%	22.3%	22.5%	22.8%	23.0%

NMOT: Irradiance 800W/m², Ambient Temperature 20° C, AM=1.5, Wind Speed 1m/s

	330.9	334.6	338.4	342.2	345.9
Rated output (P _{mpp} / Wp)					
Rated voltage (V _{mpp} / V)	31.11	31.27	31.43	31.59	31.75
Rated current (I _{mpp} / A)	10.64	10.70	10.77	10.83	10.90
Open circuit voltage (V _{oc} / V)	37.04	37.23	37.42	37.61	37.80
Short circuit current (I _{sc} / A)	11.38	11.46	11.53	11.59	11.66

Electrical Specifications (Integrated power)

P _{mpp} gain	P _{mpp} / Wp	V _{mpp} / V	I _{mpp} / A	V _{oc} / V	I _{sc} / A
5%	473	33.39	14.15	39.40	14.99
10%	495	33.39	14.82	39.40	15.70
15%	518	33.39	15.50	39.40	16.42
20%	540	33.39	16.17	39.40	17.13
25%	563	33.39	16.85	39.40	17.85

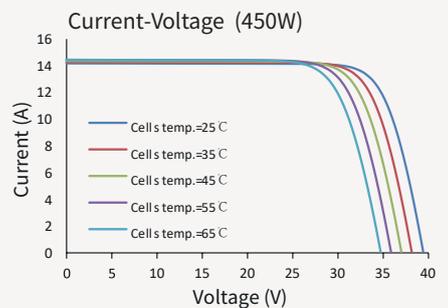
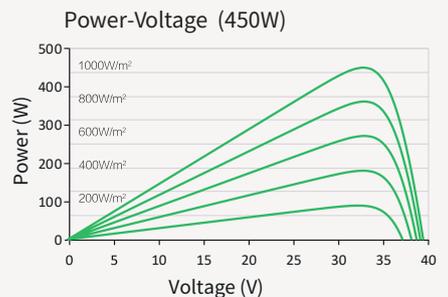
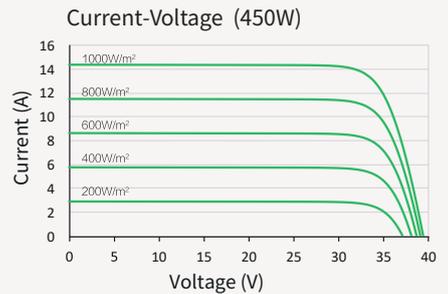
Electrical characteristics with different rear power gain (reference to 450W)

Temperature Ratings (STC)

Operating Parameters

Temperature coefficient (P _{mpp})	-0.29%/°C	No. of diodes	3
Temperature coefficient (I _{sc})	+0.043%/°C	Junction box IP rating	IP 68
Temperature coefficient (V _{oc})	-0.25%/°C	Max. series fuse rating	30 A
Nominal module operating temperature (NMOT)	41±2°C	Max. system voltage (IEC/UL)	1500V _{DC}

Curve



GOODWE

ES G2 Series

3-6kW | Single Phase | 2 MPPTs
Hybrid inverter (LV)

The GoodWe ES G2 inverter, ranging from 3 to 6kW, is a single-phase hybrid inverter designed to increase self-consumption of the generated solar energy, with the ability to control the flow of energy intelligently. The inverter can automatically realize UPS-level switching to the back-up mode in less than 10ms, with strong backup ability to withstand heavy loads like air conditioners. Its smart design also offers great flexibility for demanding scenarios as it supports parallel connection for dependable backup power supply. Featured with plug-and-play, compact design, and minimal weight, PV installations are quicker and easier to complete than ever before. Importantly, ES G2 is compatible with a wide range of low voltage batteries such as GoodWe Lynx Home U battery. For homeowners looking to achieve a high degree of energy autonomy, reliable power supply and affordable energy prices, the ES G2 is the right choice.



Smart Control & Monitoring

- Smart load control with dry contacts
- Smart home integration with multi-protocol communications



Friendly & Thoughtful Design

- Plug & Play
- Elegant and compact design



Superb Safety & Reliability

- Optional AFCI on DC side¹
- Remote Shutdown



Flexible & Adaptable Applications

- Maximum 16A DC input current per string and high-power module compatibility
- Strong backup power supply

¹: Optional functions or devices are purchased separately.

Technical Data	GW3000-ES-20	GW3600-ES-20	GW3600M-ES-20	GW5000-ES-20	GW5000M-ES-20	GW6000-ES-20	GW6000M-ES-20
Battery Input Data							
Battery Type ¹	Li-Ion						
Nominal Battery Voltage (V)	48						
Battery Voltage Range (V)	40 ~ 60						
Max. Continuous Charging Current (A) ¹	60	75	60	120	60	120	60
Max. Continuous Discharging Current (A) ¹	60	75	60	120	60	120	60
Max. Charge Power (W) ¹	3000	3600	3000	5000	3000	6000	3000
Max. Discharge Power (W)	3200	3900	3200	5300	3200	6300	3200
PV String Input Data							
Max. Input Power (W) ²	4500	5400	5400	7500	7500	9000	9000
Max. Input Voltage (V)	600						
MPPT Operating Voltage Range (V)	60 ~ 550						
Start-up Voltage (V)	58						
Nominal Input Voltage (V)	360						
Max. Input Current per MPPT (A)	16						
Max. Short Circuit Current per MPPT (A)	23						
Number of MPP Trackers	1	2	2	2	2	2	2
Number of Strings per MPPT	1						
AC Output Data (On-grid)							
Nominal Apparent Power Output to Utility Grid (VA)	3000	3680	3680	5000 ³	5000 ³	6000 ³	6000 ³
Max. Apparent Power Output to Utility Grid (VA)	3000	3680	3680	5000 ³	5000 ³	6000 ³	6000 ³
Max. Apparent Power from Utility Grid (VA)	6000	7360	3680	10000	5000	10000	6000
Nominal Output Voltage (V)	220 / 230 / 240						
Nominal AC Grid Frequency (Hz)	50 / 60						
Max. AC Current Output to Utility Grid (A)	13.6	16.7	16.7	22.7	22.7	27.3	27.3
Max. AC Current From Utility Grid (A)	27.3	33.5	16.7	43.5	22.7	43.5	27.3
Power Factor	~1 (Adjustable from 0.8 leading to 0.8 lagging)						
Max. Total Harmonic Distortion	<3%						
AC Output Data (Back-up)							
Back-up Nominal Apparent Power (VA)	3000	3680	3680	5000	5000	6000	6000
Max. Output Apparent Power (VA)	3000 (6000@10sec)	3680 (7360@10sec)	3680	5000 (10000@10sec)	5000	6000 (10000@10sec)	6000
Max. Output Current (A)	13.6	16.7	16.7	22.7	22.7	27.3	27.3
Nominal Output Voltage (V)	220 / 230 / 240						
Nominal Output Frequency (Hz)	50 / 60						
Output THDv (@Linear Load)	<3%						
Efficiency							
Max. Efficiency	97.6%						
European Efficiency	96.7%						
Max. Battery to AC Efficiency	95.5%						
MPPT Efficiency	99.9%						
Protection							
PV String Current Monitoring	Integrated						
PV Insulation Resistance Detection	Integrated						
Residual Current Monitoring	Integrated						
PV Reverse Polarity Protection	Integrated						
Anti-islanding Protection	Integrated						
AC Overcurrent Protection	Integrated						
AC Short Circuit Protection	Integrated						
AC Overvoltage Protection	Integrated						
DC Switch	Integrated						
DC Surge Protection	Type II						
AC Surge Protection	Type III						
AFCI	Optional						
Remote Shutdown	Integrated						
General Data							
Operating Temperature Range (°C)	-25 ~ +60						
Relative Humidity	0 ~ 95%						
Max. Operating Altitude (m)	3000 (>2000 Derating)						
Cooling Method	Natural Convection						
Display	LED, WLAN + APP						
Communication with BMS	CAN						
Communication with Meter	RS485						
Communication with Portal	WiFi / WiFi + LAN / 4G						
Weight (kg)	19.6	20.8	20.0	21.5	20.0	21.5	20.0
Dimension (W x H x D mm)	505.9 x 434.9 x 154.8						
Topology	Non-isolated						
Self-consumption at Night (W)	<10						
Ingress Protection Rating	IP65						
Mounting Method	Wall Mounted						

*1: The actual charge and discharge current / power also depends on the battery.

*2: The max power is the actual power of PV.

*3: 4600 for VDE-AR-N4105 & NRS 097-2-1.

*: Please visit GoodWe website for the latest certificates.

*: All pictures shown are for reference only. Actual appearance may vary.

Lynx Home U Series

5.4-32.4kWh | Low voltage battery

Lynx Home U Series is a low-voltage lithium battery specially designed for residential applications with superior performance. Compatible with GoodWe ES/EM/SBP inverters, Lynx Home U Series comes with GoodWe one-stop-shop solution saving you considerable time and effort. It can be used flexibly for self-consumption and backup applications with a wide capacity range scalable from 5.4 – 32.4kWh. The installation and commissioning are easier and faster than ever with a simple Plug and Play wiring and module auto recognition during system setup. Meet this highly efficient solution for storing your solar power and use it whenever needed.



Smart Control

- Remote diagnosis & update
- Auto reboot after undervoltage



Friendly & Thoughtful Design

- Auto-recognition modules
- Plug & Play wiring



Superb Safety & Reliability

- Reliable LFP technology with high cycle stability
- IP65 protection for outdoor installation safety



Flexible & Adaptable Applications

- 5.4 – 32.4kWh wide capacity range
- Compatible with GoodWe ES/EM/SBP inverters

Technical Data	LX U5.4-L	2*LX U5.4-L	3*LX U5.4-L	4*LX U5.4-L	5*LX U5.4-L	6*LX U5.4-L
Rated Energy (kWh) ¹	5.4	10.8	16.2	21.6	27.0	32.4
Usable Energy (kWh) ²	4.8	9.6	14.4	19.2	24.0	28.8
Cell Type	LFP (LiFePO4)					
Nominal Voltage (V)	51.2					
Operating Voltage Range (V)	48 ~ 57.6					
Nominal Dis- / Charge Current (A) ³	50	100	100	100	100	100
Nominal Power (kW) ³	2.88	5.76	5.76	5.76	5.76	5.76
Communication	CAN					
Weight (kg)	57	114	171	228	285	342
Dimensions (W x H x D mm)	505 x 570 x 175 (LX U5.4-L)					
Operating Temperature Range (°C)	Charge: 0 ~ +50 / Discharge: -10 ~ +50					
Relative Humidity	0 ~ 95%					
Max. Operating Altitude (m)	2000					
Ingress Protection Rating	IP65					
Mounting Method	Wall Mounted / Grounded					
Standard and Certification	Safety		IEC62619, IEC62040, CEC			
	EMC		CE, RCM			
	Transportation		UN38.3			

*1: Test conditions, cell Voltage 2.5 ~ 3.65V, 0.5C charge & discharge at +25 ±2°C for battery system at beginning life. System Usable Energy may vary with different Inverter.

*2: Test conditions, 90% DOD, 0.5C charge & discharge at +25 ±2°C.

*3: Nominal Dis- / Charge Current and power derating will occur related to Temperature and SOC.

*: Please visit GoodWe website for the latest certificates.

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