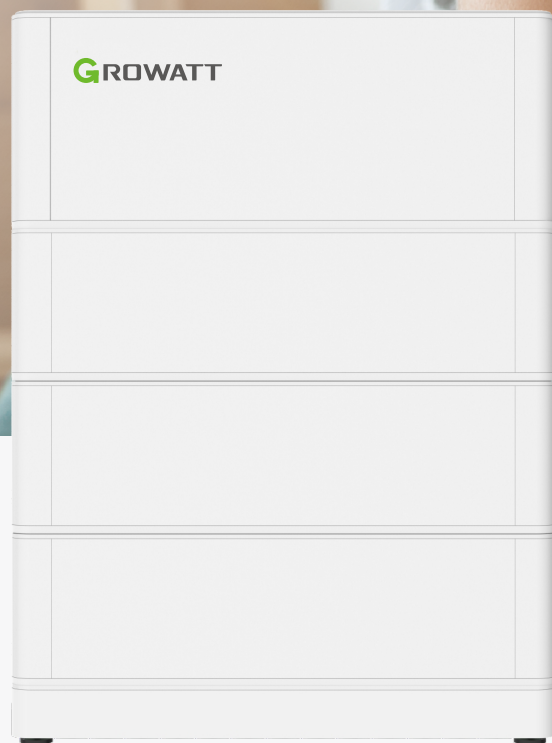


# ARK XH Battery System



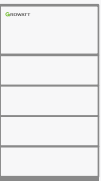






- Compatible with MIN-XH, MOD-XH series inverter
- Flexible capacity options, 5.12kWh to 25.6kWh
- Excellent safety of cobalt free LiFePO4 battery
- Easy installation with modular and stacked design
- Long lifespan, 10 years warranty
- Remote firmware upgrade



P O W E R  
- I N G O  
T O M O -  
R R O W O

**GROWATT**

[www.ginverter.com](http://www.ginverter.com)

Datasheet	ARK 5.1XH	ARK 7.6XH	ARK 10.2XH	ARK 12.8XH	ARK 15.3XH	ARK 17.9XH	ARK 20.4XH	ARK 23XH	ARK 25.6XH
System Demo									
Power module	BDC 95045-A1								
Number of power modules	1								
Battery Module	ARK 2.5H-A1 (2.56kWh, 51.2V, 28kg)								
Number of Modules in Series	2	3	4	5	6	7	8	9	10
Energy Capacity	5.12kWh	7.68kWh	10.24kWh	12.8kWh	15.36kWh	17.92kWh	20.48kWh	23.04kWh	25.6kWh
Usable Capacity	4.6kWh	6.9kWh	9.21kWh	11.52kWh	13.81kWh	16.12kWh	18.42kWh	20.74kWh	23.04kWh
Max. output power*1	2.5kW	3.75kW	5kW	6.25kW	7.5kW	8.75kW	10kW	11.25kW	12.5kW
Peak output power	5kW, 10s	7.5kW, 10s	10kW, 10s	12.5kW, 10s	15kW, 10s	17.5kW, 10s	20kW, 10s	22.5kW, 10s	25kW, 10s
Dimension (W/D/H)*2	650/260/630mm	650/260/815mm	650/260/1000mm	650/260/1185mm	650/260/1370mm	650/260/1555mm	650/260/1740mm	650/260/1925mm	650/260/2110mm
Weight	71kg	99kg	127kg	155kg	183kg	211kg	239kg	267kg	295kg
Nominal voltage (single phase system)	400V	400V	400V	400V	400V	400V	/	/	/
Operating voltage range (single phase system)*3	360V-550V	360V-550V	360V-550V	360V-550V	360V-550V	400V-550V	/	/	/
Nominal voltage (three phase system)	/	650V	650V	650V	650V	650V	650V	650V	650V
Operating voltage range (three phase system)*4	/	600V-950V	600V-950V	600V-950V	600V-950V	600V-950V	600V-950V	600V-950V	600V-950V
Battery Type	Cobalt Free Lithium Iron Phosphate (LFP)								
IP Protection	IP65								
Installation	Wall-mounted or Floor installation*5								
Operation Temperature	-10°C ... -50°C*6								
Relative humidity	5%~95%								
Cooling	Natural								
Warranty	10 years								
<b>Power modules</b>	<b>BDC 95045-A1</b>								
Dimension(W/D/H)	650/260/260mm								
Weight	15kg								
Communication Port	CAN/RS485								
Nominal voltage	400V/650V								
Operating voltage range	360V-950V								
Maximum current	21A								
Peak current	42A, 10s								
Monitoring Parameters	SOC, System voltage, current, cell voltage, cell temperature, PCBA temperature								
<b>Certification &amp; Licensing</b>	<b>IEC62619(Cell&amp;Pack)/CE/CEC/RCM/UN38.3</b>								

\*1 Depend on the max. battery charge/discharge power of the inverter.

\*2 Include power module (BDC 95045-A1)

\*3 Single phase battery ready ESS supports 2~7 pcs battery modules in series

\*4 Three phase battery ready ESS supports 3~10 pcs battery modules in series

\*5 Floor installation requires extra base (W\*D\*H=650/260/80 mm)

\*6 Battery discharge: -10°C ~ 50°C, battery charge: 0°C ~ 50°C

\*ARK series battery has an EU model and a General model, the storage inverters sold in European countries only work with EU model ARK battery.

\*2021 SHENZHEN GROWATT NEW ENERGY CO.,LTD All rights reserved. Subject to change without notice.

# Growatt ShineWiFi-X

- Cable free, easy installation
- USB communication port
- Build-in storage, 1 month data
- Online monitoring and maintenance



P O W E R  
- I N G O  
T O M O -  
R R O W O



[www.ginverter.com](http://www.ginverter.com)

Datasheet		ShineWiFi-X
<b>Wireless Parameters</b>		
Wireless standard	802.11 b/g/n	
Frequency range	2.4G~2.5G (2412M~2484M)	
Transmit power	802.11b: 16±2 dBm (@11Mbps) 802.11g: 14±2 dBm (@54Mbps) 802.11n: 13±2 dBm (@HT20, MCS7)	
Receiver sensitivity	CCK, 1 Mbps : -90dBm CCK, 11 Mbps: -85dBm 6 Mbps (1/2 BPSK): -88dBm 54 Mbps (3/4 64-QAM): -70dBm HT20, MCS7 (65 Mbps, 72.2 Mbps): -67dBm	
<b>Hardware Parameters</b>		
Data interface	USB	
Operation voltage	5V(+/-5%)	
Max.power consumption@transmit	1.2W	
Display	LED	
<b>Application Parameters</b>		
Supported servers	ShineServer	
Inverter communication	USB (Modbus RTU protocol)	
Server communication	TCP (Modbus TCP protocol)	
Max. communication range	50m	
Configure type	APP configure	
Data transfer interval	5 Minutes	
Default server URL	server.growatt.com	
<b>General Data</b>		
Dimensions(L/W/H)	135/79/29 mm	
Weight	60g	
Operating temperature range	-20 °C ~ +65 °C	
Warranty	1 year	
CE		

# SPH 4000~10000TL3 BH-UP

- 100% three-phase imbalance output
- Smart phase-level power export limitation
- Wide battery voltage 100-550V
- UPS function, 10ms transition
- Scalable system configuration
- VPP interface ready
- DC/AC type II SPD
- 1.5 DC/AC Ratio



**GROWATT**

P O W E R  
- I N G O  
T O M O -  
R R O W O

Datasheet	SPH 4000TL3 BH-UP	SPH 5000TL3 BH-UP	SPH 6000TL3 BH-UP	SPH 7000TL3 BH-UP	SPH 8000TL3 BH-UP	SPH 10000TL3 BH-UP
<b>Input data(PV)</b>						
Max. recommended PV power (for module STC)	6000W	7500W	9000W	10500W	12000W	15000W
Max. DC voltage	1000					
Start voltage	120V					
MPP voltage range	120V-1000V/600V					
No. of MPP trackers	2					
No. of PV strings per MPP tracker	1					
Max. input current per MPP tracker	13.5A					
Max. short-circuit current per MPP tracker	16.9A					
<b>Output data(AC)</b>						
AC nominal power	4000W	5000W	6000W	7000W	8000W	10000W
Max. AC apparent power	4000VA	5000VA	6000VA	7000VA	8000VA	10000VA
Nominal AC voltage (range*)	230V/400V (310--476V)					
AC grid frequency (range)	50Hz/60Hz (45Hz-55Hz/55Hz-65Hz)					
Max. output current	6.1A	7.6A	9.1A	10.6A	12.1A	15.2A
Adjustable power factor	0.8leading...0.8lagging					
THDi	<3%					
AC grid connection type	3W+N+PE					
<b>Battery data (DC)</b>						
Battery voltage range	100--550V					
Max charging and discharging current	25A					
Continuous charging and discharging power	4000W	5000W	6000W	7000W	8000W	10000W
Type of battery	Lithium battery					
<b>Backup power(AC)</b>						
Max. AC output power	4000W	5000W	6000W	7000W	8000W	10000W
Max. AC apparent power	4000VA	5000VA	6000VA	7000VA	8000VA	10000VA
Max. output current	6.1A	7.6A	9.1A	10.6A	12.1A	15.2A
Nominal AC output voltage	230V/400V					
Nominal AC output frequency	50/60HZ					
THDv	<3%					
Switch time	<10ms					
<b>Efficiency</b>						
MAX. efficiency	97.6%	97.8%	98.0%	98.2%	98.2%	98.2%
European efficiency	97.0%	97.2%	97.3%	97.4%	97.4%	97.5%
<b>Protection devices</b>						
DC switch	Yes					
DC reverse polarity protection	Yes					
AC/DC surge protection	Type II					
Battery reverse protection	Yes					
AC short-circuit protection	Yes					
Ground fault monitoring	Yes					
Grid monitoring	Yes					
Anti-islanding protection	Yes					
Residual-current monitoring unit	Yes					
Insulation resistance monitoring	Yes					
<b>General data</b>						
Dimensions (W / H / D)	505/453/198mm					
Weight	30kg					
Operating temperature range	-25 °C ... +60 °C					
Nighttime power consumption	<13W					
Topology	Transformerless					
Cooling	Natural					
Protection degree	IP65					
Relative humidity	0~100%					
Altitude	3000m					
DC connection	H4 / MC4 (Optional )					
AC connection	Connector					
Display	LCD+LED					
Interfaces: RS485/CAN/USB	Yes					
Monitor : RF/WIFI/GPRS	Optional					
Warranty: 5 years / 10 years	Yes / Optional					
CE, IEC62109, IEC 62040, VDE-AR-N 4105, VDE 0126, UTE C 15-712, C10/C11 , EN50549, CEI 0-21, CEI 0-16, IEC62116, IEC61727, AS/NZS 4777 , G98, TOR Erzeuger						

\* The AC Voltage Range may vary depending on specific country grid standard.

# Tiger 66TR

## 390-410 Watt

### MONO-FACIAL MODULE

#### P-Type

Positive power tolerance of 0~+3%

IEC61215(2016), IEC61730(2016)

ISO9001:2015: Quality Management System

ISO14001:2015: Environment Management System

ISO45001:2018

Occupational health and safety management systems



Tiling Ribbon (TR) Technology

## Key Features



#### TR technology + Half Cell

TR technology with Half cell aims to eliminate the cell gap to increase module efficiency (mono-facial up to 21.48%)



#### Best Warranty

12 year product warranty,  
25 year linear power warranty



#### 9BB instead of 5BB

9BB technology decreases the distance between bus bars and finger grid line which is benefit to power increase.



#### Enhanced Mechanical Load

Certified to withstand: wind load (2400 Pascal) and snow load (5400 Pascal).



#### Higher lifetime Power Yield

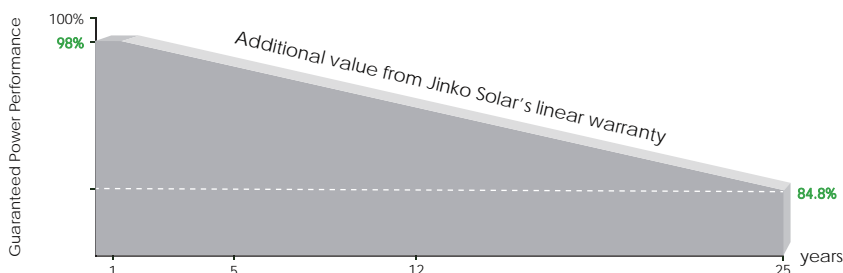
2% first year degradation,  
0.55% linear degradation



#### Avoid debris, cracks and broken gate risk effectively

9BB technology using circular ribbon that could avoid debris, cracks and broken gate risk effectively

## LINEAR PERFORMANCE WARRANTY

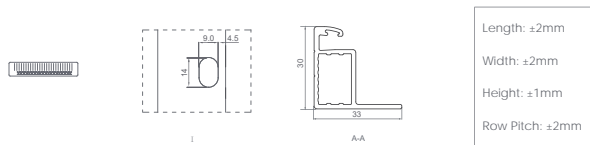
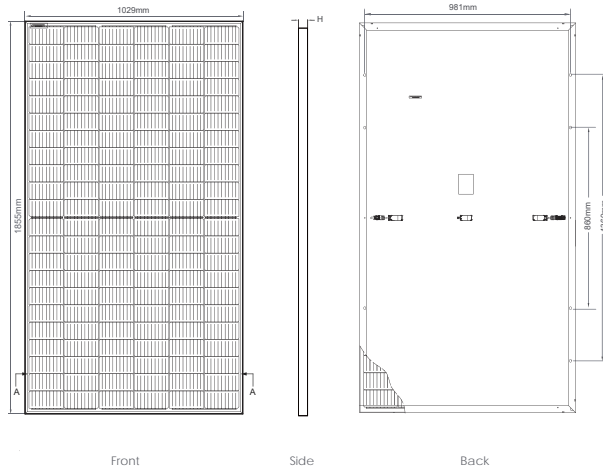


**12** Year Product Warranty

**25** Year Linear Power Warranty

**0.55%** Annual Degradation Over 25 years

## Engineering Drawings

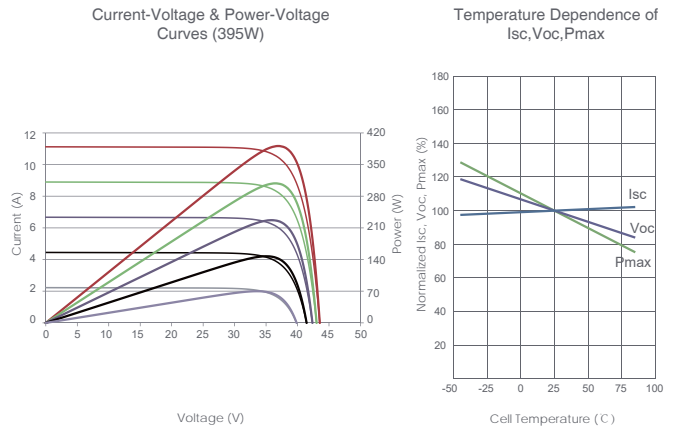


## Packaging Configuration

(Two pallets = One stack)

36pcs/pallets, 72pcs/stack, 864pcs/ 40'HQ Container

## Electrical Performance & Temperature Dependence



## Mechanical Characteristics

Cell Type	P type Mono-crystalline
No. of cells	132 (2×66)
Dimensions	1855×1029×30mm (73.03×40.51×1.18 inch)
Weight	20.8kg (45.86 lbs)
Front Glass	3.2mm, Anti-Reflection Coating, High Transmission, Low Iron, Tempered Glass
Frame	Anodized Aluminium Alloy
Junction Box	IP68 Rated
Output Cables	TUV 1×4.0mm <sup>2</sup> (+): 290mm, (-): 145mm or Customized Length

## SPECIFICATIONS

Module Type	JKM390M-6RL3		JKM395M-6RL3		JKM400M-6RL3		JKM405M-6RL3		JKM410M-6RL3	
	STC	NOCT	STC	NOCT	STC	NOCT	STC	NOCT	STC	NOCT
Maximum Power (Pmax)	390Wp	290Wp	395Wp	294Wp	400Wp	298Wp	405Wp	301Wp	410Wp	305Wp
Maximum Power Voltage (Vmp)	36.49V	33.66V	36.58V	33.82V	36.67V	33.86V	36.76V	33.97V	36.84V	34.04V
Maximum Power Current (Imp)	10.69A	8.62A	10.80A	8.69A	10.91A	8.79A	11.02A	8.87A	11.13A	8.96A
Open-circuit Voltage (Voc)	43.75V	41.29V	43.93V	41.47V	44.12V	41.64V	44.20V	41.72V	44.29V	41.80V
Short-circuit Current (Isc)	11.39A	9.20A	11.48A	9.27A	11.57A	9.34A	11.68A	9.43A	11.79A	9.52A
Module Efficiency STC (%)	20.43%		20.69%		20.96%		21.22%		21.48%	
Operating Temperature(°C)	-40 C ~ +85 C									
Maximum System Voltage	1000/1500VDC (IEC)									
Maximum Series Fuse Rating	20A									
Power Tolerance	0 ~ +3%									
Temperature Coefficients of Pmax	-0.35%/C									
Temperature Coefficients of Voc	-0.28%/C									
Temperature Coefficients of Isc	0.048%/C									
Nominal Operating Cell Temperature (NOCT)	45±2C									

\*STC: Irradiance 1000W/m<sup>2</sup> Cell Temperature 25°C AM=1.5  
NOCT: Irradiance 800W/m<sup>2</sup> Ambient Temperature 20°C AM=1.5 Wind Speed 1m/s