





URAYZERO PRODUCTS CATALOGUE

Lei Ling Technology Co., Ltd

Address: 12th Floor, Building B2, GaoSheng West Lake
Zhigu Industrial Park, No.40, Hongling 3rd Road, Shuikou Street,
Hui cheng District, Huizhou, Guangdong, China
WebSite: <https://urayzero.com>
Email: service@urayzero.com

MADE IN CHINA

-  Off Grid Solar Inverter
-  Pure Sine Wave Inverter
-  Solar Gel Storage Battery
-  Solar Panels



COMPANY PROFILE

LeiLing Technology

Founded in Huizhou city, China in 2022, LeiLing Technology Co., Ltd. is a science and technology company, specialising in the R&D, production and sales of new energy products, with products and service mainly covering solar modules, solar inverters, storage batteries, and providing technical support of complete set of photovoltaic storage system solutions etc.

Since its establishment, the company has been focusing on products development, marketing layout and customer service.

LeiLing Technology has been continuously optimising and innovating in the areas of R&D team reinforcement, production capacity layout optimisation, supply chain stabilisation and marketing team globalisation. the company has developed wide range of sales channels around the world with Huizhou city as the centre, and the products have been marketed to many countries and regions in Europe, Asia Pacific, Middle East and Africa, etc. we are committed to providing our customers with advanced and reliable clean energy solutions in order to respond quickly to the changing market,

LeiLing Technology stick to the core concept of "quality-oriented, technological innovation, service first, win-win cooperation" to promote the global development of clean energy and provide customers with high-quality products and services.

Enterprise Strength

We have an experienced R&D team and a complete production organizational structure, including R&D department, production department, quality inspecting department and other core departments. The R&D department is responsible for product development and design, the production department is responsible for product manufacturing and assembly, and the quality inspecting department is responsible for product quality control and inspection. Close cooperation between the departments is maintained to ensure the smooth progress of products from R&D to production.

In the future development, we pay more attention to sustainable development, environmental protection, energy conservation and other issues. Through the adoption of eco-friendly technology and energy-saving equipment, we continue to develop eco-friendly products and services to meet consumers' needs for sustainable development.

Authentication Certificate

ISO9001:2015
TUV
MSDS
CE



Our Advantages

- Factory direct sale
- OEM orders accepted
- Experienced R&D team
- Ready Stock meet fast delivery
- Professional Online Technical Support
- Excellent sales and after-sale service

10+ Year Factory
ALL-IN-ONE Solutions
Support OEM/ODM
30 years after-sales service guarantee



Off Grid Solar Inverter

NML Series



Product Features

- Pure sine wave solar inverter
- Wifi&GPRS available for IOS and android
- Built-in 80A MPPT solar charger
- High PV input voltage range(30~400VDC)
- Built-in anti-dust kit for harsh environment
- Smart battery charge designed to optimize battery life
- Meet rich customized demands
- Compatible with lithium battery
- Solar energy is provided directly to the load first

 Max. Efficiency 98%	 80A MPPT	 IP21 Ingress Protection
 APP	 RS232/GPRS WIFI	 LCD Display

Product Parameter

Model	NML-2000-12	NML-3200-24
RATED POWER	2000VA/1600W	3200VA/3000W
AC Input		
Voltage	230VAC	
Selectable Voltage Range	170~280VAC(For Personal Computers) 90~280VAC(For Home Appliances)	
Frequency Range	50 Hz/60Hz(Auto sensing)	
AC OUTPUT		
AC Voltage Regulation	230VAC±5%	
Surge Power	4000VA	6400VA
Efficiency(Peak)PV to INV	98%	
Efficiency(Peak)Battery to INV	94%	
Transfer Time	10 ms (For Personal Computers);20 ms (For Home Appliances)	
BATTERY		
Battery Voltage	12VDC	24VDC
Floating Charge Voltage	13.5VDC	27VDC
Overcharge Protection	16VDC	33VDC
SOLAR CHARGER & AC CHARGER		
Solar Charger Type	MPPT	
Maximum PV Array Power	2000W	3000W
MPPT Range @ Operating Voltage	30~400VDC	
Maximum PV Array Open Circuit Voltage solar	400VDC	
Max Input Current	1/13A	
Maximum Solar Charge Current	80A	
Maximum AC Charge Current	60A	
Maximum Charging Current (Solar+AC)	80A	
PHYSICAL		
Dimension,D*W*H(mm)	357*273*95	
Carton Dimension,D X W XH(mm)	440*340*170	
Net Weight(kgs)	5	5.6
Gross Weight(kgs)	6	6.3
Communication interface	RS232/GPRS/WIFI	
ENVIRONMENT		
Humidity	5% to 95% Relative Humidity(Non ~ condensing)	
Operating Temperature	-10°C ~ 50°C	
STANDARD		
Compliance Safety	CE	

Off Grid Solar Inverter

GH Series 1.2-5.5KW



Product Features

- Lithium Battery Auto-restart Function, More Convenient for Lithium Battery Charging
- Communication Option: External WiFi, Supervise at Any Time
- Utility Charging Voltage/PV Charging Voltage Adjustable, Match Different Battery Charging Requirements
- Slim Body, Convenient Installation And Transportation
- Battery Reverse Connection Protection with Fuse Switch, Safer Installation
- PF1.0, High Efficiency, Lower Consumption, Energy Conservation/Environmental Protection /Electricity Saving/cost Saving
- Support Working without Battery: Reduce Solar System Cost
- Parallel Function Up to Maximum 9 Units: Enlarge More Loads
- High Precision of Output Voltage, +5%, Take Care of Your Appliances
- Intelligent Power Supply Mode, Intelligent Distribution of Solar Panel/Mains Battery Power Shares

Product Parameter

Model		GH12V1.2KW	GH24V2KW	GH24V3KW	GH48V5KW or GHB48V5KW	GH48V5.5KW or GHB48V5.5KW
Input	Input Sources	L+N+PE				
	Rated Input Voltage	208/220/230/240 VAC				
	Voltage Range	154-264VAC±3V(APP mode),185-264VAC±3V(UPS mode)				
	Frequency	50/60 Hz Auto Adaptive				
Output	Rated Capacity	1000W	2000W	3000W	5000W	5500W
	Output Voltage	208/220/230/240VAC±5%				
	Output Frequency	50/60 Hz ±0.1%				
	Wave Form	Pure Sine Wave				
	Transfer Time	Computer mode(UPS mode)10ms,Appliance(APP mode)20ms				
	Peak Power	2000VA	4000VA	6000VA	10000VA	11000VA
	Over Load Ability	Battery Mode: 1min@102%-110% Load 10s@110%-130% Load 3s@130%-150% Load 200ms@>150% Load				
Battery	Peak Efficiency (battery mode)	>93%	>93%	>94%	>94%	>94%
	Battery Voltage	12Vdc	24Vdc	24Vdc	48Vdc	48Vdc
	Constant Charging Voltage(adjustable)	14.1Vdc	28.2Vdc	28.2Vdc	56.4Vdc	56.4Vdc
Chargers	Floated Charging Voltage(adjustable)	13.5Vdc	27Vdc	27Vdc	54Vdc	54Vdc
	PV Charge Mode	PWM	PWM	MPPT	MPPT	MPPT
	Max Input Power	600W	1200W	3000W	6000W	6000W
	MPPT Tracking Range	N/A	N/A	30-115Vdc	120-430Vdc	120-430Vdc
	Max PV input voltage	55Vdc	80Vdc	145Vdc	450Vdc	450Vdc
	Best Open Circuit Voltage	15-30V	30-32V	70-110V	370-430V	370-430V
	Best Voltage	15V	30V	60-90V	300-340V	300-340V
	Max PV Charging Current	50A	50A	60A	100A	100A
	Max AC Charging Current	50A	50A	60A	100A	100A
	Max Charging Current	100A	100A	120A	100A	100A
Display	LCD Display	Display Running Mode/Loads/Input/Output,etc.				
	Rs232	5PIN/Pitch 2.0mm ,Baud Rate 2400				
Interface	Communication Port	2x5PIN/Pitch 2.54mm,lithium battery BMS communication card,Wifi card,Dry contact card				
	Parallel Function	Without Parallel			GHB48V5KW/5.5KW with Parallel	
Enviroments	Operate Temperature	0-40°C				
	Humidity	20%-95%(Non-condensing)				
	Storage Temperature	-15-60°C				
	Altitude	Altitude not over 1000m,derating over1000m ,max 4000m, refer to IEC62040				
	Noise	≤50db				

On/Off Grid Solar Inverter

Max Series



Product Features

- Pure sine wave solar inverter(on/off Grid)
- Output power factor 1.0
- WIFI&GPRS available for IOS and Android
- Inverter can run without battery
- One-key restoration to factory Settings
- Built-in Lithium battery automatic activation
- Built-in 160A MPPT solar charger (for 8.2kw,10.2kw), 140A(for 7.2kw)
- High PV input voltage range(90~ 500VDC)
- Built-in anti-dust kit for harsh environment
- Smart battery charge design to optimize battery life
- Dual output
- Dual PV input
- Touch button
- On Off Grid Work Mode



Product Parameter

MODEL	MAX-8.2KW		MAX-10.2KW	
Phase	1-phase			
Maximum PV Input Power	8200W	5400W+5400W	10200W	5400W+5400W
Rated Output Power	8200W/8200VA		10200W/10200VA	
Maximum Solar Charging Current	160A		160A	
GRID-TIE OPERATION				
PV INPUT (DC)				
Nominal DC Voltage/Maximum DC Voltage	360/500VDC			
Start-up Voltage / Initial Feeding Voltage	90VDC/120VDC			
MPPT Voltage Range	90~450VDC			
Maximum Input Current	1/23A	2/18A	1/23A	2/18A
GRID OUTPUT (AC)				
Nominal Output Voltage	220/230/240VAC			
Output Voltage Range	190~253VDC			
Nominal Output Current	35.6A		44.3A	
Power Factor	>0.99			
EFFICIENCY				
Maximum Conversion Efficiency (DC/AC)	98%			
TWO LOAD OUTPUT POWER				
Full Load	8200W		10200W	
Maxium Main Load	8200W		10200W	
Maxium Second Load(battery mode)	2733W		3400W	
Maxium Load Cut Off Voltage	52VDC		52VDC	
Maxium Load Return Voltage	54VDC		54VDC	
OFF-GRID OPERATION				
AC INPUT				
AC Start-up Voltage / Auto Restart Voltage	120-140VAC/180VAC			
Acceptable Input Voltage Range	90-280VAC or 170-280VAC			
Frequency Range	49~51±1HZ			
Maximum AC Input Current	40A		50A	
PV INPUT (DC)				
Nominal DC Voltage/Maximum DC Voltage	360/500VDC			
MPPT Voltage Range	90~450VDC			
Maximum Input Current	1/23A	2/18A	1/23A	2/18A
BATTERY MODE OUTPUT (AC)				
Nominal Output Voltage	220/230/240VAC			
Output Waveform	Pure sine wave			
Efficiency (DC to AC)	94%			
BATTERY & CHARGER				
Nominal DC Voltage	48VDC			
Maximum Solar Charging Current	160A		160A	
Maximum AC Charging Current	140A		140A	
Maximum Charging Current	160A		160A	
HYBRID OPERATION				
PV INPUT (DC)				
Nominal DC Voltage/Maximum DC Voltage	360/500VDC			
Start-up Voltage / Initial Feeding Voltage	90VDC/120VDC			
MPPT Voltage Range	90~450VDC			
Maximum Input Current	1/23A	2/18A	1/23A	2/18A
GRID OUTPUT (AC)				
Nominal Output Voltage	220/230/240VAC			
Output Voltage Range	190~253VDC			
Nominal Output Current	35.6A		44.3A	
AC INPUT				
AC Start-up Voltage / Auto Restart Voltage	120-140VAC/180VAC			
Acceptable Input Voltage Range	90-280VAC or 170-180VAC			
Maximum AC Input Current	40A		50A	
Maximum AC Charging Current	140A		140A	
GENERAL				
PHYSICAL				
Dimension, D x W x H (mm)	500*390*130	530*420*160	500*390*130	530*420*160
Carton Dimension, D X W X H(mm)	588*463*205	618*463*205	588*463*205	618*463*205
Net Weight (kgs)	14.5	14.6	14.8	15
Gross Weight(kgs)	16	16.1	16.2	16.5
INTERACE				
Communication Port	RS232/RS485/WIFI/GPRS/LITHIUM BATTERY			
ENVIRONMENT				
Humidity	5% to 95% Relative Humidity(Non - condensing)			
Operating Temperature	-10°C ~ 50°C			
STANDARD				
Compliance Safety	CE			

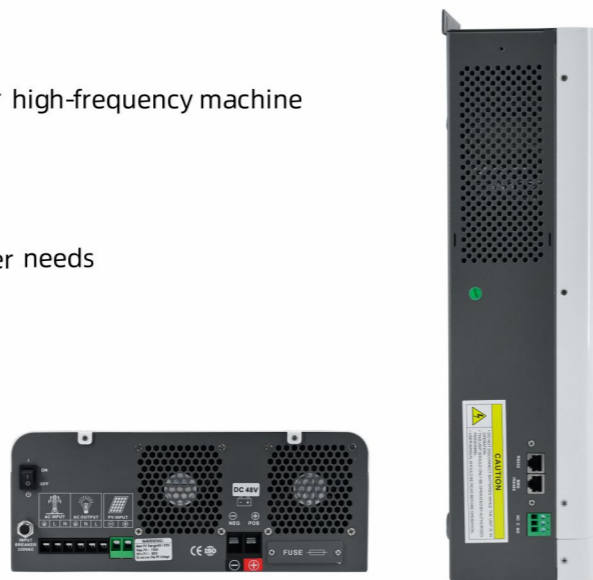
Pure Sine Wave Inverter

Low Frequency UD1-5KVA



Product Features

- No load loss is small, less than half of the same power high-frequency machine
- Pure sine wave output, can adapt to different loads
- Output short circuit protection function
- Multiple parameters can be adjusted according to user needs
- Optional solar controller with PWM/MPPT
- Optional with BMS communication function
- RS485 communication function is optional



Product Parameter

Model	1012/24	1512/24	2012/24/48	2524/48	3024/48	3824/48	4024/48	5048
Input	220VAC/110VAC							
Input voltage range	220V: 154-264VAC± 3V (Normal mode) 185-264VAC± 3V (UPS mode) \110V: 77-132VAC± 3V (Normal mode) 92-132VAC± 3V (UPS mode)							
Input frequency	50/60Hz± 5%							
Rated output power	1000W	1200W	1600W	2000W	2400W	3000W	3200W	4000W
Mains output voltage	The output voltage under mains is the same as the input voltage							
Mains output frequency	The output frequency under mains is the same as the input frequency							
Output voltage under inverter	220VAC± 10% (110VAC± 10%)							
Output frequency under inverter	50HZ or 60HZ± 1%							
Output waveform in inverse mode	Pure sine wave							
Battery type	External lead-acid battery or water battery or lithium battery							
Battery voltage	12VDC / 24VDC / 48VDC							
Battery charging voltage	13.7VDC / 27.4VDC / 54.8VDC							
Maximum photovoltaic array power	12V: 800W 24V: 1600W 48V: 3200W							
PV input voltage range (PWM/MPPT)	12V: MPPT 15V-150VDC / PWM 15V-30VDC(Customizable 50VDC) 24V: MPPT 30V-150VDC / PWM 30V-60VDC(Customizable 105VDC) 48V: MPPT 60V-150VDC / PWM 60V-105VDC							
Maximum open circuit voltage of photovoltaic display	12V: MPPT 150VDC / PWM 30VDC(Customizable 50VDC) 24V: MPPT 150VDC / PWM 60VDC(Customizable 105VDC) 48V: MPPT 150VDC / PWM 105VDC							
Optimal Vmp operating range	12V: MPPT 15-105VDC / PWM 15-20VDC 24V: MPPT 30-105VDC / PWM 30-40VDC 48V: MPPT 60-105VDC / PWM 60-80VDC							
Maximum solar charging current	60A							
Maximum AC charging current	19A/10A	29A/15A	38A/19A/9A	24A/12A	30A/15A	35A/17A	38A/19A	24A
Conversion time	≤ 10ms (UPSmode) / ≤ 20ms (INVmode)							
Peak load ratio	(MAX)3:1							
Standby power consumption (W)	Ring bull transformer 12V: 8W 24V: 16W 48V: 32W							
Protection function	Mains off: There is no fuse switch to protect the input overcurrent Inverter: overload protection, short circuit protection, low voltage protection, battery reverse connection protection (fuse)							
Status display	Dot matrix screen plus LED display/color segment code screen plus LED display Through the page key can view, AC voltage, AC frequency, PV voltage, PV current, output voltage, output frequency, battery voltage, load current and other parameters. LED displays mains, charging status, inverter status, fault status							
Sound cue	Buzzer according to the different fault code, alarm sound is different, with long and short sound distinguish							
Operating temperature	0°C~40°C							
Storage temperature	-15°C~45°C							
Relative temperature	-10°C~90°C Condensation free							
noise	< 45dB							
Machine size (L*W*H)mm	VV: 490*312*125MM VL: 465*310*135MM							
Out of package size (L*W*H)mm	VV: 552*385*193MM(carton) / 557*382*195MM(Color box) VL: 530*386*200MM(Color box) / 535*380*195MM(Color box)							
Net machine weight Kg/Gross weight	Refer to [TQF Production Machine Package Size and Weight Record Table]							
Standard for ex-factory inspection report								
Random parts	Random standard :1 manual, 1 fuse, 2 C45 cord end terminals							

Pure Sine Wave Inverter

Low Frequency UD6-12.5KVA



Product Features

- No load loss is small, less than half of the same power high-frequency machine
- Pure sine wave output, can adapt to different loads
- Output short circuit protection function
- Multiple parameters can be adjusted according to user needs
- Optional solar controller with PWM/MPPT
- Optional with BMS communication function
- RS485 communication function is optional



Product Parameter

Model	5024/48	6048	6348	8048	10048	12548
Input	220VAC/110VAC					
Input voltage range	220V: 154-264VAC± 3V (Normal mode) 185-264VAC± 3V (UPS mode) 110V: 77-132VAC± 3V (Normal mode) 92-132VAC± 3V (UPS mode)					
Input frequency	50/60Hz± 5%					
Rated output power	4000W	4800W	5000W	6400W	8000W	10000W
Mains output voltage	The output voltage under mains is the same as the input voltage					
Mains output frequency	The output frequency under mains is the same as the input frequency					
Output voltage under inverter	220VAC± 10% (110VAC± 10%)					
Output frequency under inverter	50HZ or 60HZ± 1%					
Output waveform in inverse mode	Pure sine wave					
Battery type	External lead-acid battery or water battery or lithium battery					
Battery voltage	24VDC / 48VDC					
Battery charging voltage	27.4VDC / 54.8VDC					
Maximum photovoltaic array power	24V: 3200W 48V: 6400W					
PV input voltage range (MPPT)	24V: MPPT 30V-150VDC(Customizable 200VDC) 48V: MPPT 60V-150VDC(Customizable 200VDC)					
Maximum open circuit voltage of photovoltaic display	24V: MPPT 150VDC(Customizable 200VDC) 48V: MPPT 150VDC(Customizable 200VDC)					
Optimal Vmp operating range	24V: MPPT 30V-105VDC 48V: MPPT 60V-105VDC					
Maximum solar charging current	120A					
Maximum AC charging current	48A / 24A	29A	31A	38A	48A	60A
Conversion time	≤ 10ms (UPSmode) / ≤ 20ms (INVmode)					
Peak load ratio	(MAX)3:1					
Standby power consumption (W)	Ring bull transformer 24V: 16W / 48V: 32W Mains off: There is no fuse switch to protect the input overcurrent					
Protection function	Inverter: overload protection, short circuit protection, low voltage protection, battery reverse connection protection (fuse)					
Status display	Dot matrix screen plus LED display/color segment code screen plus LED display Through the page key can view, AC voltage, AC frequency, PV voltage, PV current, output voltage, output frequency, battery voltage, load current and other parameters. LED displays mains, charging status, inverter status, fault status					
Sound cue	Buzzer according to the different fault code, alarm sound is different, with long and short sound distinguish					
Operating temperature	0°C~40°C					
Storage temperature	-15°C~45°C					
Relative temperature	-10°C~90°C Condensation free					
noise	< 45dB					
Machine size (L*W*H)mm	545*400*200MM					
Out of package size (L*W*H)mm	660*460*270MM(Honeycomb carton)					
Net machine weight Kg/Gross weight	Refer to [TQF Production Machine Package Size and Weight Record Table]					
Standard for ex-factory inspection report	Random standard :1 manual, 1 fuse, 2 C45 cord end terminals					
Random parts						

Three Phase Inverter Charger

Off Grid Solar Inverter HDLL 4-200KVA

Feature

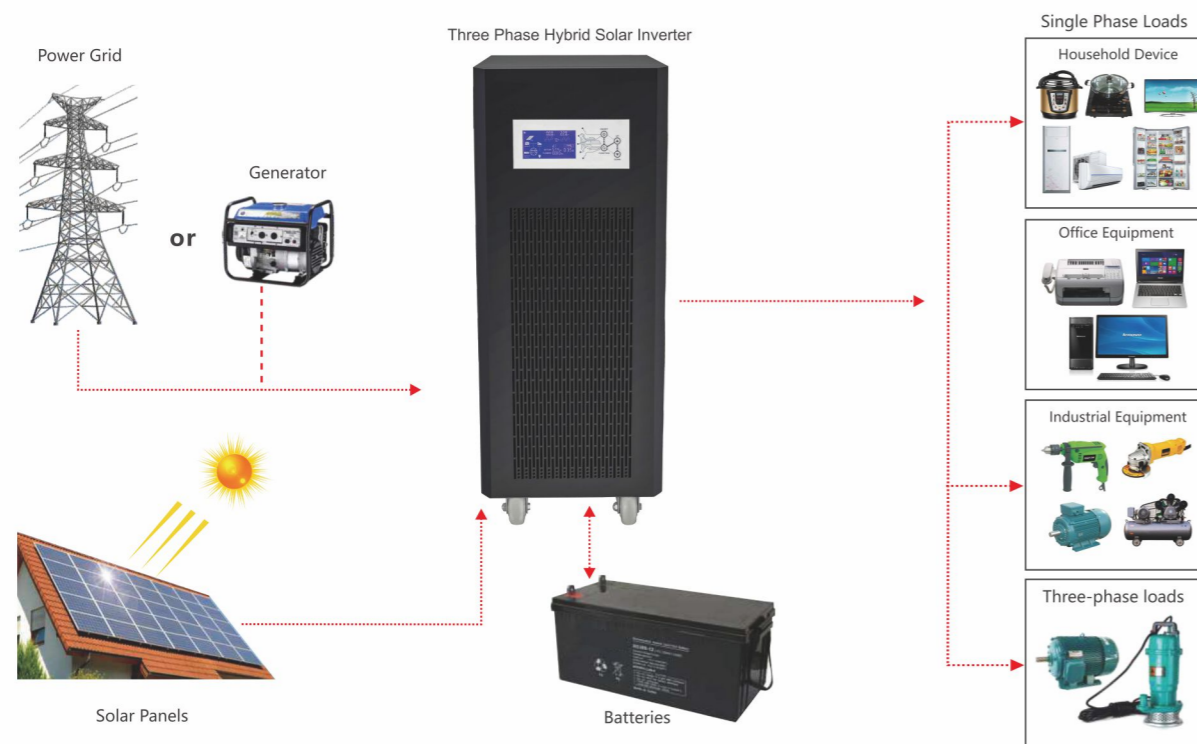
- Pure sine wave output;
- Low DC voltage, saving system cost;
- Built-in PWM or MPPT charge controller;
- AC charge current 0-45A adjustable;
- Wide LCD screen, clearly and precisely shows icon data;
- 100% imbalance loading design, 3 times peak power;
- Setting different working modes based on variable usage requirements;
- Various communication ports and Remote monitoring RS485/APP(WIFI/GPRS) (Optional).

Application Area

- Medium IDC data exchange center machine room, medium scale network management system, billing center, bank/securities settlement center, industrial process control applications, traffic control areas etc.
- Provide stable, reliable and safe solutions for families, islands, ships and other small photovoltaic power systems



System Application Diagram



Product Parameter

Model: HDSX	4KVA	6KVA	7KVA	8KVA	10KVA	12.5KVA	15KVA	20KVA	25KVA	30KVA		
Rated Power	3.2KW	4.8KW	5.6KW	6.4KW	8KW	10KW	12KW	16KW	20KW	24KW		
Peak Power(20ms)	9.6KVA	14.4KVA	16.8KVA	19.2KVA	24KVA	30KVA	36KVA	48KVA	60KVA	72KVA		
Start Motor	3HP	4HP	4HP	4HP	5HP	6HP	7HP	10HP	10HP	15HP		
Battery Voltage	48/96/192VDC									96/192VDC		
Built-in solar controller charging current (Optional)	PWM:10A-60A(48V System);50A/100A(96V System);50A(192V System)					PWM: 50A/100A (96V System); 50A/100A (192V System)						
Size(L*W*Hmm)	565*300*775					725*365*1010						
Package Size(L*W*Hmm)	625*360*895					785*425*1135						
N.W.(kg)	65	73	75	80	112	122	134	160	176	189		
G.W.(kg)(Wooden Packing)	78	86	88	93	136	146	158	184	200	213		
Installation Method	Tower											
Model: HDSX	40KVA	50KVA	60KVA	80KVA	100KVA	120KVA	125KVA	150KVA	160KVA	190KVA	200KVA	
Rated Power	32KW	40KW	48KW	64KW	80KW	96KW	100KW	120KW	128KW	150KW	160KW	
Peak Power(20ms)	96KVA	120KVA	144KVA	192KVA	240KVA	288KVA	300KVA	360KVA	384KVA	450KVA	480KVA	
Start Motor	15HP	20HP	25HP	30HP	40HP	50HP	50HP	60HP	60HP	80HP	80HP	
Battery Voltage	192VDC					384VDC						
Built-in solar controller charging current (Optional)	PWM:100A-200A(192V&384V System)					PWM: 100A-200A / MPPT: 50A/100A						
Size(L*W*Hmm)	720*575*1275					875*720*1380			1123*900*1605			
Package Size(L*W*Hmm)	785*640*1400					980*825*1560			1185*960*1750			
N.W.(kg)	287	307	337	355	512	592	612	612	642	705	755	
G.W.(kg)(Wooden Packing)	320	340	370	388	552	632	652	652	692	755	805	
Installation Method	Tower											
Input	DC Input Voltage Range	10.5-15VDC (Single battery voltage)										
	AC Input Voltage Range	380Vac/400Vac±10%(customized 190Vac/200Vac)										
	AC Input Frequency Range	45Hz-55Hz (50Hz) / 55Hz-65Hz (60Hz)										
	Max AC charging current	0~45A (Depending on the model)										
	AC charging method	Three-stage (constant current, constant voltage, floating charge)										
Output	Phase	3/N/PE										
	Efficiency(Battery Mode)	≥85%										
	Output Voltage(Battery Mode)	380Vac/400Vac±10%(customized 190Vac/200Vac)										
	Output Frequency(Battery Mode)	50/60Hz±1%										
	Output Wave(Battery Mode)	Pure Sine Wave										
	Output waveform distortion	Linear load≤3%										
	Efficiency(AC Mode)	>99%										
	Output Voltage(AC Mode)	Conforming to AC input										
	Output Frequency(AC Mode)	Conforming to AC input										
	No load loss(Battery Mode)	≤2.5% rated power (4KVA-30KVA models) ; ≤1% rated power (40KVA-200KVA models)										
Battery Type	VRLA Battery	Charge Voltage :13.8V; Float Voltage:13.7V (Single battery voltage)										
	Customize battery	Charging and discharging parameters of different types of batteries can be customized according to user requirements (charging and discharging parameters of different types of batteries can be set through the operation panel)										
	Protection	Battery undervoltage alarm	11V (Single battery voltage)									
		Battery undervoltage protection	10.5V (Single battery voltage)									
		Battery overvoltage alarm	15V (Single battery voltage)									
Battery overvoltage protection		17V (Single battery voltage)										
Alarm	Battery overvoltage recovery voltage	14.5V (Single battery voltage)										
	Overload power protection	Automatic protection (battery mode), circuit breaker or insurance (AC mode)										
	Inverter output short circuit protection	Automatic protection (battery mode), circuit breaker or insurance (AC mode)										
	Temperature protection	>90°C (Shut down output)										
	Phase	3/N/PE										
Inside Solar controller (Optional)	Charging Mode	MPPT or PWM										
	Charging current	PWM: 10A/20A/30A/40A/50A/60A(48V System); 50A/100A/150A/200A(96V/192V/384V System)										
	PV Input Voltage Range	PWM: 60V-88V(48V System); 120V-176V(96V System); 240V-352V(192V System); 480V-704V(384V System)										
	Max PV Input Voltage(Voc) (At the lowest temperature)	MPPT: 60V-120V(48V System); 120V-240V(96V System); 240V-360V(192V System); 480V-640V(384V System)										
	PV Array Maximum Power	PWM: 100V(48V System); 200V(96V System); 400V(192V System); 750V(384V System)										
Working Mode	Standby loss	≤3W										
	Maximum conversion efficiency	>95%										
	Transfer Time	≤4ms										
	Display	LCD										
	Thermal method	Forced air cooling										
Environment	Communication(Optional)	RS485/APP (WIFI monitoring or GPRS monitoring)										
	Operating temperature	-10°C~40°C										
	Storage temperature	-15°C~60°C										
	Noise	≤65dB										
	Elevation	2000m (More than derating)										
Warranty	Humidity	0%~95% (No condensation)										
		3 year										






Note: 1. Specifications are subject to change without prior notice; 2. Special voltage and power requirements can be customized according to the actual situation of users.

Energy Storage LiFePO4 Battery-Stackable Model



Product Features



-  LFP (lithium iron phosphate) cell to ensure the highest safety.
-  Built-In BMS protects the cell such as temperature, current, voltage, SOC, SOH.
-  Extra long cycle life times with 6000 cycles with 80% DOD.
-  Compatible with most of the available inverters.
-  Possibility of parallel connection with up to 16 pieces.



Product Parameter

Main Control Module	RPT-LFP			
Battery Module	LL-51.2V100			

Basic Parameters				
Battery Module NO.	2 modules	3 modules	4 modules	5 modules
Rated Voltage	51.2V	51.2V	51.2V	51.2V
Usable Energy	10240Wh	15360Wh	20480Wh	25600Wh

Operating Parameters				
Output Voltage Range	43.2V~57.6V			
Charging Voltage	52.5-57.6(recommend 56V)			
Cut-off Voltage	43.2V			
Max. Charging Current	200A	300A	400A	500A
Recommended Charging Current	50A	100A	200A	200A
Max. Discharging Current	150A	300A	400A	500A
Efficiency	>98%	>98%	>98%	>98%

Physical				
Dimension L*W*H(mm)	635*500*312	635*500*465	635*500*620	635*500*772
Weight (kg)	90	140	220	260

Environment	
Humidity	5%~95% Relative humidity
Charging Temperature	0°C~60°C
Discharging Temperature	-20°C~60°C
Storage Temperature	-10°C~30°C

Service Life	
Cycle Life	>6000 times (0.2C, @25°C, 80%DOD)
Design Life	> 3 years






Telecom LiFePO4 Battery



Compatible with 19" rack

Product Features



-  LFP (lithium iron phosphate) cell to ensure the highest safety, high energy density, wide temperature range, longer cycle life.
-  Built-In BMS protects the cell such as temperature, current, voltage, SOC, SOH.
-  Supports RS485, RS232, CANBUS for communication.
-  Compact modular design for maximum capacity flexibility, minimize installation time and cost.
-  Possibility of connection in parallel with up to 10 pieces.

Product Parameter

Model	LL-48V50-RM	LL-48V100-RM	LL-48V150-RM	LL-48V200-RM
Operating Parameters				
Rated Voltage	48V	48V	48V	48V
Rated Capacity (0.2°C, @25°C)	50Ah	100Ah	150Ah	200Ah
Rated Energy	2400Wh	4800Wh	7200Wh	9600Wh
Operating Parameters				
Output Voltage Range	42.0V~54.0V			
Charging Voltage	52.5-54(recommend 53V)			
Cut-off Voltage	42V			
Max. Charging Current	50A	100A	100A	100A
Recommended Charging Current	25A	50A	50A	50A
Max. Discharging Current	50A	100A	100A	100A
Efficiency	>98%	>98%	>98%	>98%
Physical				
Dimension L*W*H(mm)	480*442*135	480*442*155	500*442*226	600*442*226
Weight (kg)	28	45	58	86
Environment				
Humidity	5%~95% Relative humidity			
Charging Temperature	0°C~60°C			
Discharging Temperature	-20°C~60°C			
Storage Temperature	-10°C~30°C			
Service Life				
Cycle Life	>6000 times (0.2C, @25°C, 80%DOD)			
Design Life	>3 years			

Gel Battery

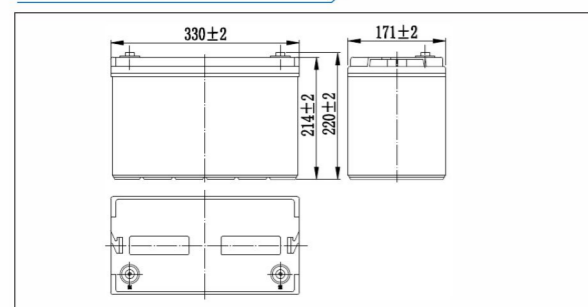
12V-100Ah



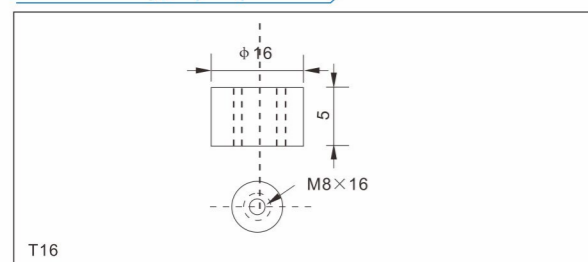
Specifications

Nominal Voltage	12V	
Rated capacity (20 hour rate)	100Ah	
Dimensions	Length	330±2mm(12.99inch)
	Width	171±2mm(6.73inch)
	Height	214±2mm(8.43inch)
	Total Height	220±2mm(8.66inch)
Approx. Weight	27.3kg(60.18 lbs) ±3%	

Outer dimensions (mm)



Terminal Type (mm)



Characteristics

Capacity (25°C)	20HR(10.8V)	100Ah
	3HR(10.8V)	75Ah
	1HR(10.5V)	55Ah
Terminal type		T16
Internal resistance (Fully charged, 25°C)		Approx.5mΩ
Capacity affected by temperature (20HR)	40°C	102%
	25°C	100%
	0°C	85%
	-15°C	65%
Self-discharge (25°C)	3 months	Remaining Capacity:91%
	6 months	Remaining Capacity:82%
	12 months	Remaining Capacity:65%
Nominal operating temperature		25°C ±3°C(77°F ±5°F)
Operating temperature range	Discharge	-15°C~50°C(5°F~122°F)
	Charge	-10°C~50°C(14°F~122°F)
	Storage	-20°C~50°C(-4°F~122°F)
Float charging voltage(25°C)	13.50 to 13.80V Temperature compensation: -18mV/°C	
Cyclic charging voltage(25°C)	14.40 to 14.70V Temperature compensation: -30mV/°C	
Maximum charging current	20A	
Maximum discharge current	700A(5 sec.)	
Designed floating life(20°C)	12years	

Construction

Component	Positive plate	Negative plate	Container	Cover	Separator	Electrolyte	Safety valve	Terminal
Raw material	Lead dioxide	Lead	ABS	ABS	AGM	Gel	Rubber	Copper

Constant Current Discharge Characteristics Unit:A(25°C,77°F)

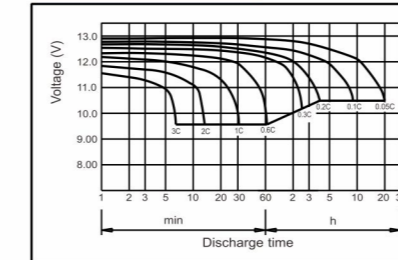
F.V/Time	10min	15min	30min	60min	2h	3h	4h	5h	8h	10h	20h
9.60V	195	160	97.0	60.0	36.5	26.0	20.4	17.3	12.2	10.2	5.40
9.90V	189	156	95.1	59.1	36.3	25.9	20.3	17.2	12.2	10.2	5.38
10.2V	181	150	92.2	57.6	36.0	25.7	20.1	17.1	12.1	10.1	5.37
10.5V	174	145	89.9	55.8	35.5	25.5	20.0	17.0	12.0	10.1	5.34
10.8V	164	138	86.6	54.0	34.6	25.0	19.4	16.5	11.6	10.0	5.30

Constant Power Discharge Characteristics Unit:W(25°C,77°F)

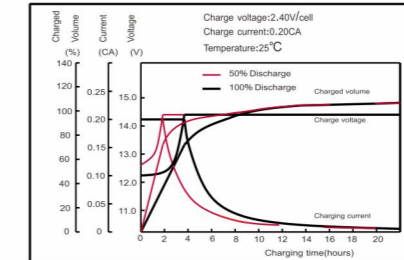
F.V/Time	10min	15min	30min	60min	2h	3h	4h	5h	8h	10h	20h
9.60V	2106	1757	1088	684	423	306	240	205	145	122	64.7
9.90V	2043	1715	1067	674	421	304	238	204	145	121	64.6
10.2V	1959	1651	1034	657	417	302	237	202	144	121	64.4
10.5V	1874	1595	1009	636	411	300	235	201	143	120	64.0
10.8V	1769	1511	972	616	400	294	228	195	138	119	63.6

Note: The above characteristics data can be obtained within three charge or discharge cycles.

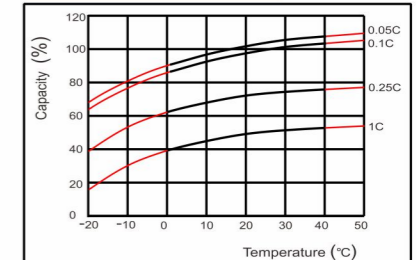
Discharge characteristics(25°C)



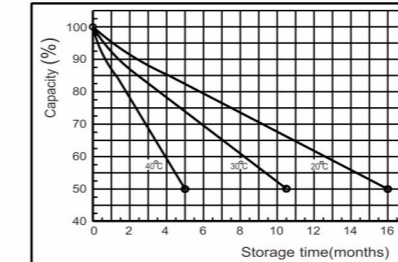
Charging characteristics (25°C)



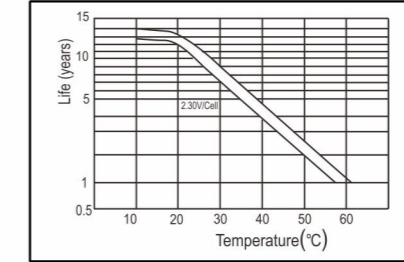
Temperature effects on Capacity



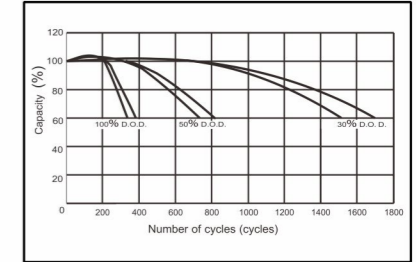
Self-discharge characteristics



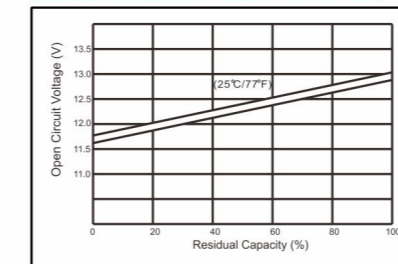
Floating life on Temperature



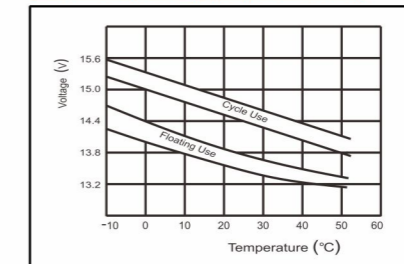
Cycle life on D.O.D (25°C)



The relationship for OCV and Capacity (25°C)



The relationship for Charging voltage and Temperature



Gel Battery

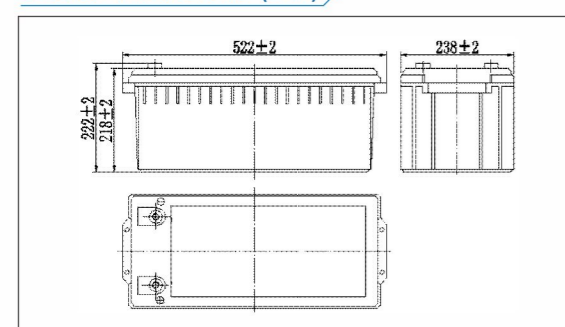
12V-200Ah



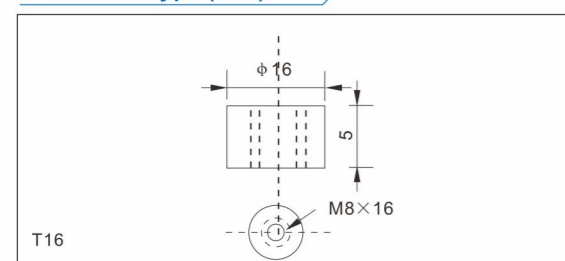
Specifications

Nominal Voltage	12V	
Rated capacity (20 hour rate)	200Ah	
Dimensions	Length	522±2mm(20.55inch)
	Width	238±2mm(9.37inch)
	Height	218±2mm(8.58inch)
	Total Height	222±2mm(8.74inch)
Approx. Weight	52.8kg(116.80lbs)±3%	

Outer dimensions (mm)



Terminal Type (mm)



Characteristics

Capacity (25°C)	20HR(10.8V)	200Ah
	3HR(10.8V)	150Ah
	1HR(10.5V)	110Ah
Terminal type	T16	
Internal resistance (Fully charged, 25°C)	Approx. 3.3mΩ	
Capacity affected by temperature (20HR)	40°C	102%
	25°C	100%
	0°C	85%
	-15°C	65%
Self-discharge (25°C)	3 months	Remaining Capacity: 91%
	6 months	Remaining Capacity: 82%
	12 month	Remaining Capacity: 65%
Nominal operating temperature	25°C ± 3°C (77°F ± 5°F)	
Operating temperature range	Discharge	-15°C ~ 50°C (5°F ~ 122°F)
	Charge	-10°C ~ 50°C (14°F ~ 122°F)
	Storage	-20°C ~ 50°C (-4°F ~ 122°F)
Float charging voltage(25°C)	13.50 to 13.80V Temperature compensation: -18mV/°C	
Cyclic charging voltage(25°C)	14.40 to 14.70V Temperature compensation: -30mV/°C	
Maximum charging current	40A	
Maximum discharge current	1400A(5 sec.)	
Designed floating life(20°C)	12years	

Construction

Component	Positive plate	Negative plate	Container	Cover	Separator	Electrolyte	Safety valve	Terminal
Raw material	Lead dioxide	Lead	ABS	ABS	AGM	Gel	Rubber	Copper

Constant Current Discharge Characteristics Unit:A(25°C,77°F)

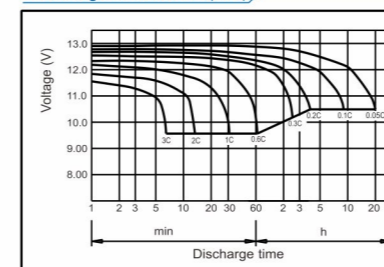
F.V/Time	15min	30min	60min	2h	3h	4h	5h	6h	8h	10h	20h
9.60V	320	194	120	73.1	52.0	40.8	34.7	30.6	24.5	20.4	10.8
9.90V	312	190	118	72.6	51.7	40.6	34.5	30.4	24.3	20.3	10.8
10.2V	301	184	115	72.0	51.4	40.3	34.2	30.2	24.2	20.3	10.7
10.5V	291	180	112	70.9	51.0	40.0	34.0	30.0	24.0	20.1	10.7
10.8V	275	173	108	69.1	50.0	38.8	33.0	29.1	23.3	20.0	10.6

Constant Power Discharge Characteristics Unit:W(25°C,77°F)

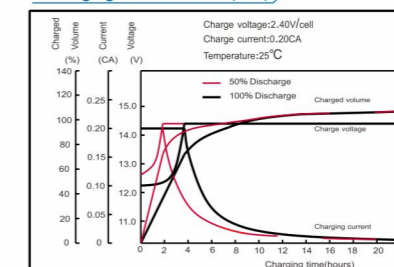
F.V/Time	15min	30min	60min	2h	3h	4h	5h	6h	8h	10h	20h
9.60V	3514	2177	1368	846	612	480	410	362	291	243	129
9.90V	3429	2133	1347	841	608	477	408	360	289	243	129
10.2V	3303	2068	1313	834	604	474	405	357	287	242	129
10.5V	3190	2018	1272	821	600	470	402	355	285	240	128
10.8V	3022	1944	1231	800	588	456	390	344	277	239	127

Note: The above characteristics data can be obtained within three charge or discharge cycles.

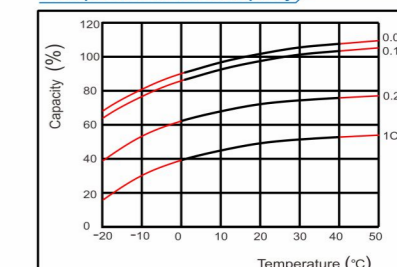
Discharge characteristics(25°C)



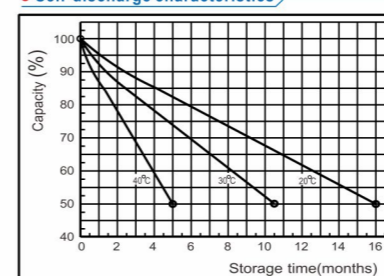
Charging characteristics (25°C)



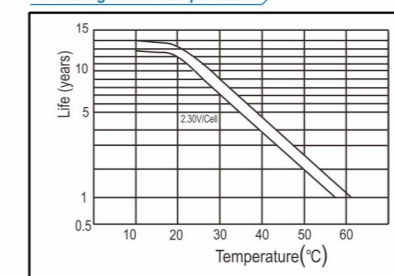
Temperature effects on Capacity



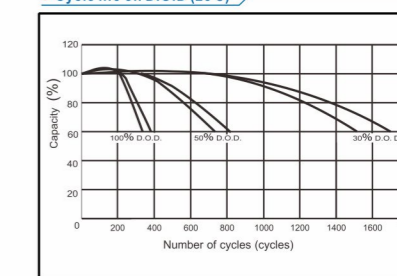
Self-discharge characteristics



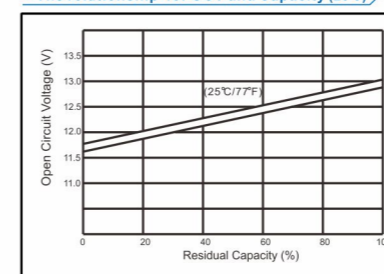
Floating life on Temperature



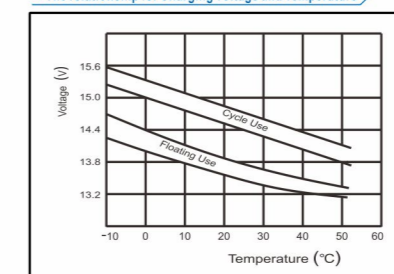
Cycle life on D.O.D (25°C)



The relationship for OCV and Capacity (25°C)



The relationship for Charging voltage and Temperature



Gel Battery

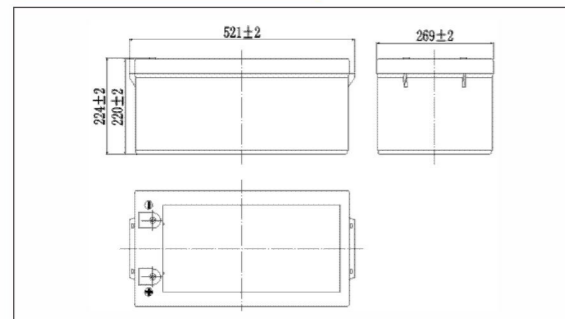
12V-250Ah



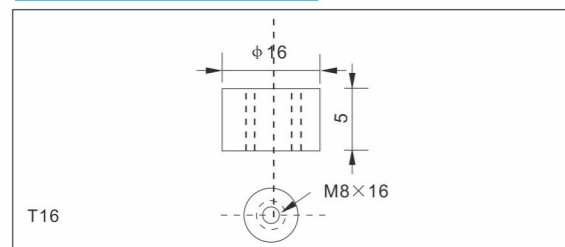
Specifications

Nominal Voltage	12V	
Rated capacity (20 hour rate)	250Ah	
Dimensions	Length	521±2mm(20.51inch)
	Width	269±2mm(10.59inch)
	Height	220±2mm(8.66inch)
	Total Height	224±2mm(8.82inch)
Approx. Weight	66.8kg (147.26lbs)±3%	

Outer dimensions (mm)



Terminal Type (mm)



Characteristics

Capacity (25°C)	20HR(10.8V)	250Ah
	3HR(10.8V)	187Ah
	1HR(10.5V)	137Ah
Terminal type		T16
Internal resistance (Fully charged,25°C)		Approx.2.8m Ω
Capacity affected by temperature (20HR)	40°C	102%
	25°C	100%
	0°C	85%
	-15°C	65%
Self-discharge (25°C)	3 months	Remaining Capacity:91%
	6 months	Remaining Capacity:82%
	12 months	Remaining Capacity:65%
Nominal operating temperature		25°C ±3°C(77°F ±5°F)
Operating temperature range	Discharge	-15°C~50°C(5°F~122°F)
	Charge	-10°C~50°C(14°F~122°F)
	Storage	-20°C~50°C(-4°F~122°F)
Float charging voltage(25°C)		13.50 to 13.80V Temperature compensation: -18mV/°C
Cyclic charging voltage(25°C)		14.40 to 14.70V Temperature compensation: -30mV/°C
Maximum charging current		50A
Maximum discharge current		1500A(5 sec.)
Designed floating life(20°C)		12years

Construction

Component	Positive plate	Negative plate	Container	Cover	Separator	Electrolyte	Safety valve	Terminal
Raw material	Lead dioxide	Lead	ABS	ABS	AGM	Gel	Rubber	Copper

Constant Current Discharge Characteristics Unit:A(25°C,77°F)

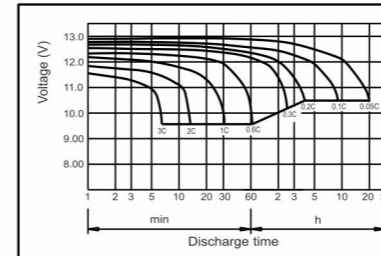
F.V/Time	15min	30min	60min	2h	3h	4h	5h	6h	8h	10h	20h
9.60V	400	243	150	91.4	65.0	51.0	43.4	38.3	30.6	25.5	13.5
9.90V	390	238	148	90.8	64.6	50.7	43.1	38.0	30.4	25.4	13.5
10.2V	376	230	144	90.0	64.2	50.4	42.8	37.8	30.2	25.3	13.4
10.5V	363	225	140	88.7	63.8	50.0	42.5	37.5	30.0	25.2	13.3
10.8V	344	217	135	86.4	62.5	48.5	41.2	36.4	29.1	25.0	13.3

Constant Power Discharge Characteristics Unit:W(25°C,77°F)

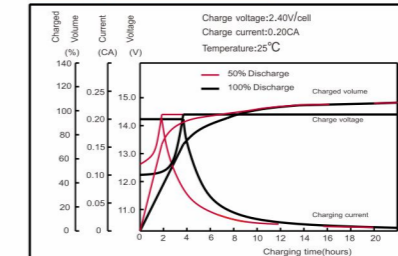
F.V/Time	15min	30min	60min	2h	3h	4h	5h	6h	8h	10h	20h
9.60V	4392	2721	1710	1058	765	600	512	452	364	304	162
9.90V	4287	2666	1684	1052	760	596	509	449	361	303	162
10.2V	4128	2585	1642	1042	755	592	506	446	359	302	161
10.5V	3988	2522	1590	1027	750	588	502	443	356	301	160
10.8V	3777	2430	1539	1001	735	570	487	430	346	299	159

Note: The above characteristics data can be obtained within three charge or discharge cycles.

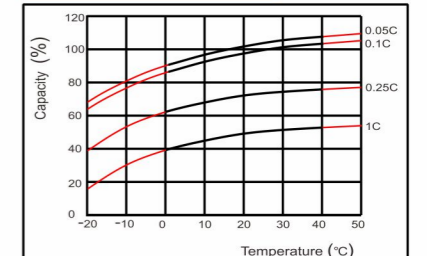
Discharge characteristics(25°C)



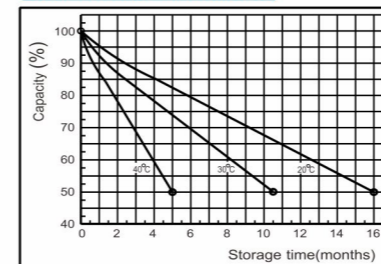
Charging characteristics (25°C)



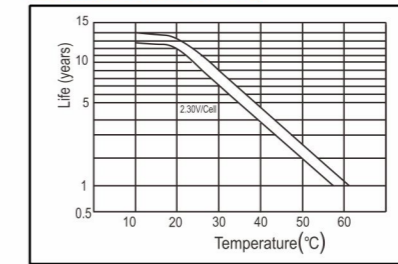
Temperature effects on Capacity



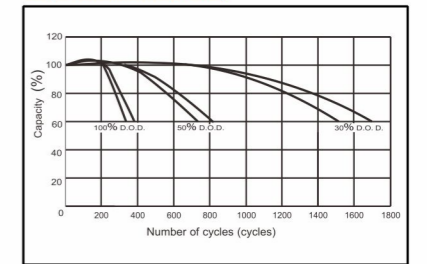
Self-discharge characteristics



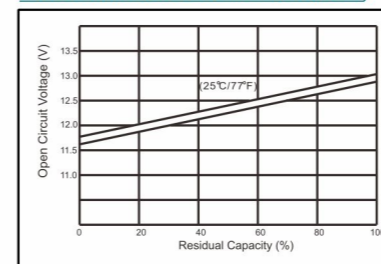
Floating life on Temperature



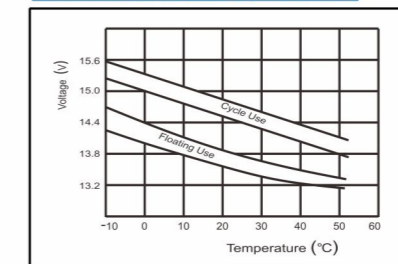
Cycle life on D.O.D (25°C)



The relationship for OCV and Capacity (25°C)

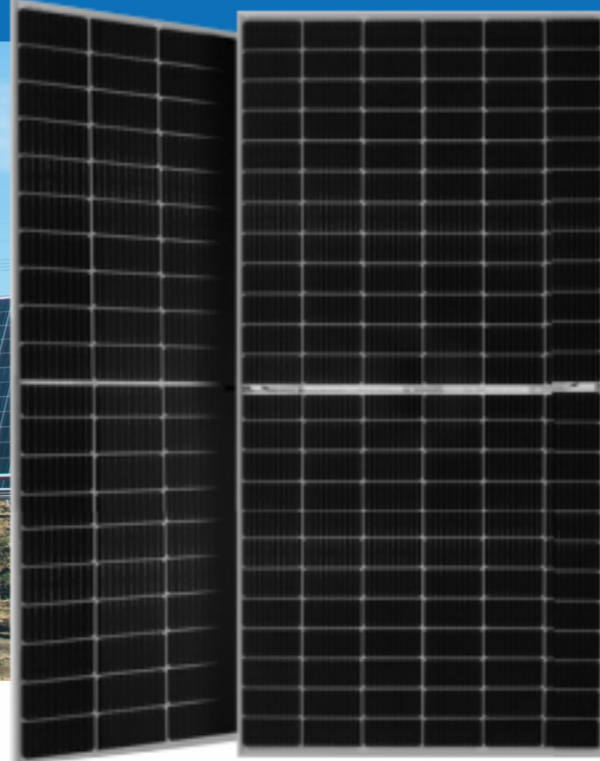


The relationship for Charging voltage and Temperature



LL Pro 72HC-BDVP Monocrystalline Module

145W-157W



Product Advantages



Multi-main gate technology
Better light utilization and current collection capability, effectively improve product power output and reliability.



Longer Service Life
Excellent double-sided warranty Promise 30 years power warranty .45% linear power attenuation.



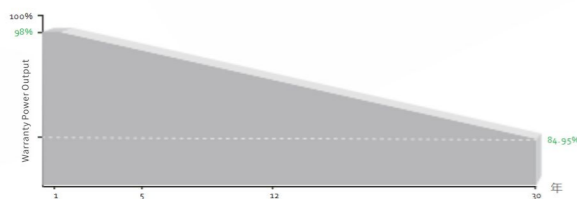
Anti-PID guarantee
The attenuation probability caused by PID phenomenon is minimized through optimization of battery production technology and material control.



Load capacity
The unit is certified for wind loads of 2400pa and snow loads of 5400pa.



Double-sided power generation
The gain of double-sided power generation increases with the light on the back, up to 25% , and decrease LCOE significantly.



- 12 years material process warranty
- 30-YEAR linear warranty
- Excellent warranty promises 30-year power warranty 0.45% linear power attenuation

Product Parameter

Packaging Standards

Flatbed transport loading (model: high and low plate-total length of 17.5 meters, high plate length of 3.5-4.5 meters)

Structure Parameters

Cell type	P-type monocrystalline
Number of half-cell	72(4x18)
Component dimensions	1050x770x30mm
Component weight	9kg
Front Glass	2.0mm Coating ,High transmission glass
Back Glass	Heat-strengthened glass
Frame	Anodized Aluminium Alloy
Junction Box	Ip68 Rated
Output Cables	TUV 1x4.0mm ² (+):290mm,(-):145mm or Customized Length

Electrical performance parameters

Module Type	JKM29M-72HL4-BDVP		JKM150M-72HL4-BDVP		JKM152M-72HL4-BDVP		JKM155M-72HL4-BDVP		JKM157M-72HL4-BDVP	
	STC	NOCT	STC	NOCT	STC	NOCT	STC	NOCT	STC	NOCT
Maximum Power(Pmax)	145Wp	108Wp	150Wp	111Wp	152Wp	113Wp	155Wp	115Wp	157Wp	117Wp
Maximum Power Voltage (Vmp)	40.86V	37.85V	40.96V	37.94V	41.13V	38.08V	41.32V	38.25V	41.51V	38.42V
Maximum Power Current (Imp)	3.55A	2.85A	3.67A	2.93A	3.70A	2.97A	3.76A	3.01A	3.79A	3.05A
Open-circuit Voltage (Voc)	49.45V	46.55V	49.56V	46.76V	49.73V	46.94V	49.92V	47.12V	50.11V	47.30V
Short-circuit Current (Isc)	3.756A	3.02A	3.88A	3.1A	3.92A	3.15A	3.98A	3.19A	4.01A	3.23A
Module Efficiency STC (%)	17.94%		18.56%		18.80%		19.17%		19.42%	
Operating Temperature (°C)	-40°C~+85°C									
Maximum System Voltage	1500 VDC (IEC)									
Maximum Series Fuse Rating	30A									
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±2°C									
Reference double-sided	70±10%									

Double-sided power generation parameters (Back gain)

Back gain (%)	Maximum Power (Pmax)	Module Efficiency(%)	153Wp	158Wp	160Wp	163Wp	165Wp
5%	Maximum Power (Pmax)	Module Efficiency(%)	153Wp	158Wp	160Wp	163Wp	165Wp
			18.92%	19.54%	19.79%	20.16%	20.42%
15%	Maximum Power (Pmax)	Module Efficiency(%)	167Wp	172Wp	175Wp	179Wp	181Wp
			20.66%	21.27%	21.65%	22.07%	22.35%
25%	Maximum Power (Pmax)	Module Efficiency(%)	181Wp	187Wp	190Wp	194Wp	196Wp
			22.39%	23.13%	23.50%	24.00%	24.28%

LL-BPDMJ40H-WTE Monocrystalline Module

300W



Product Advantages



Cell efficiency > 22.5%



30 years Linear power output warranty



EL Double Inspection



diameter 25mm with 23m/s (standard)
diameter 55mm with 33.9m/s (optional)

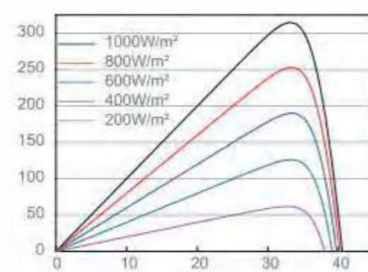


12 years Material & workmanship warranty

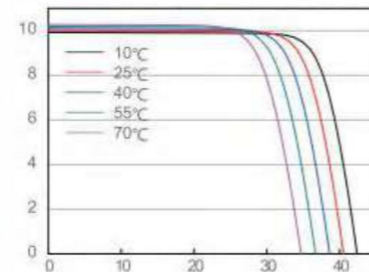


front side 5400Pa (standard)
front side 8000Pa & 12000Pa (optional)

Certification



Current-Voltage and Power-Voltage Curves at Different Irradiances



Current-Voltage Curves at Different Temperatures

Product Parameter

ELECTRICAL CHARACTERISTICS AT STANDARD TEST CONDITIONS (STC)

Model	290W	295W	300W
Open Circuit Voltage - Voc (V)	52.55	53.15	53.75
Short Circuit Current - Isc (A)	7.19	7.23	7.27
Max Power Voltage - Vmpp (V)	43.56	44.06	44.56
Max Power Current - Imp (A)	6.66	6.70	6.74

Electrical data relates to standard test conditions (STC): irradiance 1000 W/m²; AM 1.5; cell temperature 25°C measuring uncertainty of power is within 0-5W. Certified in accordance with IEC61215:2016, IEC61730-1/2:2016

ELECTRICAL CHARACTERISTICS WITH DIFFERENT REAR SIDE POWER GAIN

Model	SAB300-40M					
Power gain	5%	10%	15%	20%	25%	30%
Max Power - Pmpp (W)	315	330	345	360	375	390
Open Circuit Voltage - Voc (V)	54.88	55.28	55.68	56.08	56.48	56.88
Short Circuit Current - Isc (A)	7.48	7.78	8.08	8.38	8.68	8.98
Max Power Voltage - Vmpp (V)	45.32	45.82	46.32	46.82	47.32	47.76
Max Power Current - Imp (A)	6.95	7.20	7.45	7.68	7.93	8.18

TEMPERATURE CHARACTERISTICS

Voltage Temperature Coefficient	-0.26%/K
Current Temperature Coefficient	+0.044%/K
Power Temperature Coefficient	-0.34%/K

MAXIMUM RATINGS

Maximum system voltage (V)	1500 V DC
Series fuse rating (A)	20A

MECHANICAL CHARACTERISTICS

Dimensions	1600*1200*7mm Length*Width*Depth
Weight	33kg ± 3%
Frame	Frameless
Front and Rear glass	Printed toughened glass, good light absorption
Cell Encapsulation	EVA (Ethylene-Vinyl-Acetate)
Back sheet	Float toughened glass, good light transmission
Cells	5*8 pieces Mono solar cells series strings(5INCH)
Junction Box	IP ≥ 68, 2 diodes
Cable	4mm ²
Connector	MC 4

Note: We accept customized solar modules, such as frame, backsheet colors, length of cables

PACKAGING

Container	840 (40'HQ)
13m car	28 trust/840pieces

PARAMETERS

temp. Range	-40°C to 85°C
Application Class	Class A
Pollution Degree	1
Protection Class	Class II
Fire Rating	Class A
Backside rate	70% ± 5%
Transmittance	31%

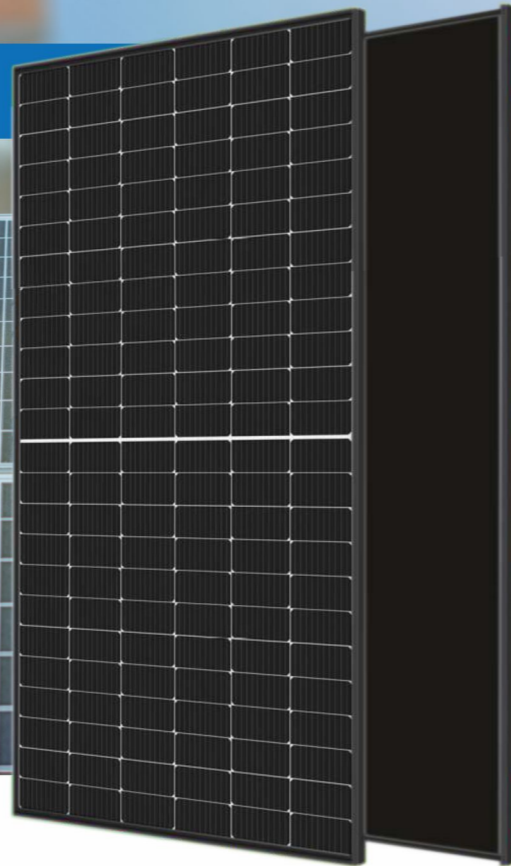
RATED CELL OPERATING TEMPERATURE

Rated cell operating temperature	45 ± 2 °C
----------------------------------	-----------

LL-M10-108TS

Single Glass

390W-410W



Product Advantages



Excellence Low-Irradiance
Well generation Capacity & Temperature Stability in low irradiance condition



Robust Mechanical Durability
Excellent resistance of 5400 Pa snow load and 2400 Pa wind load



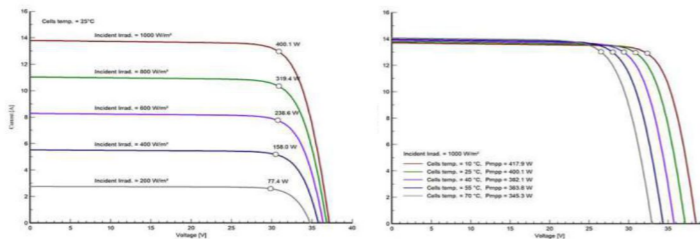
Harsh Environment Adaptability
Excellent resistance on Salt mist, Ammonia and Dust sand



Crackless Soldering
Improve the loading capacity & Increase the power and efficiency



Multi Bus-bar Design
Better light utilization and current collection capabilities, effectively improve the power output of the product



Tolerance during Power test: ±3%
Product specifications may change without notice

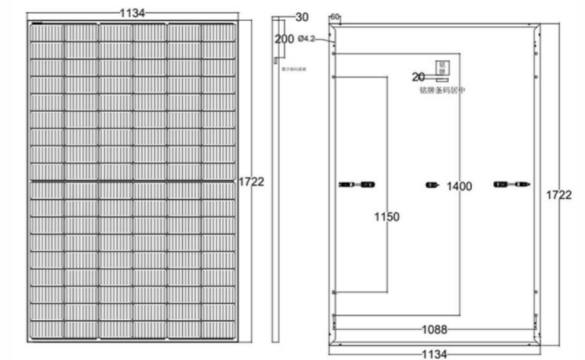
Certification



Product Parameter

Physical Construction Parameters

Type of Cell	/	Mono (P type)
Number of half-cell	[Pc]	108
Module sizes: L*W*H	[mm]	1 722X 1134X30 / 1 722X 1134X35
Weight	[kg]	20.6 (±3%) / 20.5 (±3%)
Frame	/	Anodised Aluminum
J-Box	/	IP68 ,3diodes
Diameter of Cable	[mm²]	4mm²(IEC) / 12AWG (UL)
Standard length of Cable	[mm]	300mm or customized



Electricity Parameters

Items	UNIT	STC	NOCT	STC	NOCT	STC	NOCT	STC	NOCT	STC	NOCT
Max. Power Output Pmax	[W]	390	287	395	291	400	295	405	298	410	302
Max. Power Voltage Vmp	[V]	30.64	28.56	30.84	28.75	31.04	28.93	31.2	29.12	31.44	29.3
Max. Power Current Imp	[A]	12.73	10.06	12.81	10.12	12.89	10.19	12.97	10.25	13.05	10.31
Open Circuit Voltage Voc	[V]	36.96	35.49	37.05	35.68	37.14	35.86	37.23	36.05	37.32	36.23
Short Circuit Current Isc	[A]	13.61	10.86	13.70	10.95	13.79	11.04	13.88	11.12	13.97	11.2
Module Efficiency	[%]	19.97	14.70	20.23	14.90	20.48	15.11	20.74	15.26	21.00	15.47
Operation Temperature	[°C]	-40°C~+85°C									
Max. System Voltage	[V]	1500V DC (IEC)									
Max. Over Current	[A]	25A									
Power Output Tolerance	[W]	0~+5W									
Temperature Coefficient Of Pmp	[°C]	-0.350%/°C									
Temperature Coefficient Of Voc	[°C]	-0.275%/°C									
Temperature Coefficient Of Isc	[°C]	+0.045%/°C									
Normal Operating Cell Temperature	[°C]	45±2									

Operation Conditions

Max.Wind load and Snow load	[Pa]	2400Pa / 5400Pa
Protection Class	/	Class II
Fire Rating	/	Class C / UL790

Package and loading Information

Truck (17.5m)	[Pc]	1728
Container	[Pc]	936(40'HQ)/216(20'GP)
Individual Pallet	[Pc]	36

- 0~+5W
- Positive Tolerance
- <0.55%
- Year 2-25 Power Degradation
- <2%
- Lower Operating Temperature
- 21%
- Max.Module Efficiency

LL-M10-120TS

Monocrystalline Module

440W-450W



450W
Maximum Power Output

21.0%
Maximum Module Efficiency

0~+5W
Maximum Module Guarantee

Product Advantages

- Ideal choice for large scale ground installation

Selected encapsulating material and stringent production process control to ensure the product is highly PID resistant and snail trails free
- Special cutting and soldering technology leads to low hotspot risk

Pass the test of dust, salt spray, ammonia and other weatherability test, withstand harsh outdoor conditions
- The unique pattern design and circuit design minimize the impact of the shadow occlusion on the generation performance.

The modules have the cell nondestructive cutting technology, to greatly reduce the series current and the power loss, are achieved your ideal choice.

The Specification and main features described in this data sheet may vary slightly. Leiling reserves the right to make any adjustment to this information at any time without prior notice. Please feel free to obtain the specifications. The specification shall be formally incorporated into the binding contract signed by both parties and shall be applicable to all transactions related to the sale and purchase of the products mentioned in this agreement.

Insurance services are provided by China Ping An Property Insurance Company Limited



Product Parameter

Electrical Specification | STC

Maximum Power	Pmax(W)	440	445	450
Maximum Power Voltage	Vmp(V)	41.40	41.75	42.10
Maximum Power Current	Imp(A)	10.63	10.66	10.69
Open Circuit Voltage	Voc(V)	49.25	49.55	49.84
Short Circuit Current	Isc(A)	11.28	11.31	11.34
Module Efficiency	(%)	19.90	20.10	20.40
Power Output Tolerance	(W)		0~+5	

* Irradiance 1000W/m², Cell Temperature 25°C, Air Mass 1.5

Electrical Performance Parameters | NOCT

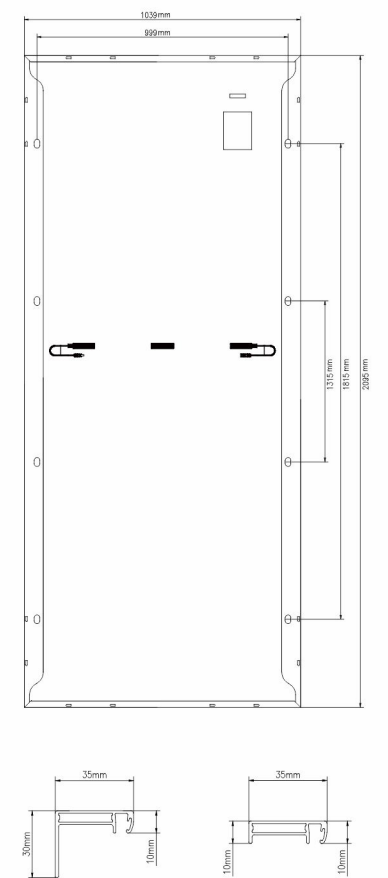
Maximum Power	Pmax (W)	321.03	324.79	328.57
Maximum Power Voltage	Vmp (V)	37.84	38.13	38.42
Maximum Power Current	Imp (A)	8.48	8.52	8.55
Open Circuit Voltage	Voc(V)	45.56	45.82	46.08
Short Circuit Current	Isc (A)	9.12	9.14	9.17

* Irradiance 800W/m², Ambient Temperature 20°C, Wind Speed 1m/s

Mechanical Data

Number of Cells	144 Cells (6x24)
Dimensions of Module L*W*H (mm)	2095x1039x35mm
Weight (kg)	25.4kg
Glass	High transparency solar glass 3.2mm (0.13 inches)
Backsheet	White
Frame	Black/Silver, anodized aluminium alloy
J-Box	IP68 Rated
Cable	4.0mm² (0.006 inches²), Portrait: 300/300mm (9.06inches)
Number of diodes	3
Wind/ Snow Load	2400Pa/ 5400Pa*
Connector	MC Compatible

Module Dimension



Maximum Ratings

Operational Temperature	-40~+85°C
Maximum System Voltage	1500V DC
Max Series Fuse Rating	20A

Optional

- Connector: Original MC4
- Cable length: 1600mm

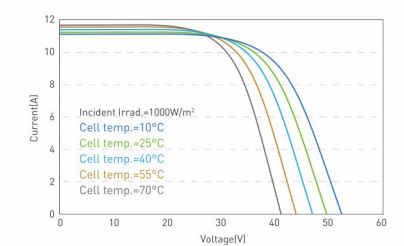
Temperature Ratings

Nominal Module Operating Temperature(NMOT)	44±2°C
Temperature Coefficient of Isc	+0.06%/°C
Temperature Coefficient of Voc	-0.30%/°C
Temperature Coefficient of Pmax	-0.39%/°C

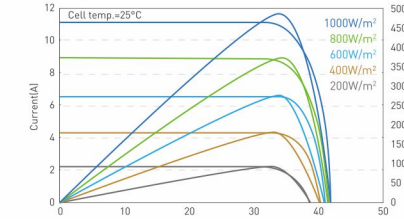
Packaging Configuration

Module per box	31 pieces/trust
17.5m car	32 trust/992 pieces
13.5m car	24 trust/744 pieces
Power measurement error	+/-3%

I-V Curve at Different Temperature (455W)



I-V/P-V Curve at Different Irradiation (455W)



NOTE: To read the safety and installation instructions before using the product. SHINEAO Solar is copyright and this data sheet specification will be changed without notice.

LL-M10-144TS

Monocrystalline Module

530W-555W



555W
Maximum Power Output

21.3%
Maximum Module Efficiency

0~+5W
Maximum Module Guarantee

Product Advantages

Ideal choice for large scale ground installation

Selected encapsulating material and stringent production process control to ensure the product is highly PID resistant and snail trails free

Special cutting and soldering technology leads to low hotspot risk

Sand blowing test, salt mist test and ammonia test passed to endure harsh environments

Optimized system performance due to modul level current sorting

Highly transparent self-cleaning glass brings additional yield and easy maintenance

The Specification and main features described in this data sheet may vary slightly. Leiling reserves the right to make any adjustment to this information at any time without prior notice. Please feel free to obtain the specifications. The specification shall be formally incorporated into the binding contract signed by both parties and shall be applicable to all transactions related to the sale and purchase of the products mentioned in this agreement.

Insurance services are provided by China Ping An Property Insurance Company Limited



Product Parameter

Electrical Specification | STC

Maximum Power	P _{max} (W)	530	535	540	545	550	555
Maximum Power Voltage	V _{mp} (V)	41.48	41.77	42.06	42.35	41.96	42.11
Maximum Power Current	I _{mp} (A)	12.78	12.81	12.84	12.87	13.11	13.18
Open Circuit Voltage	V _{oc} (V)	49.28	49.51	49.75	49.98	49.90	50.02
Short Circuit Current	I _{sc} (A)	13.57	13.60	13.63	13.66	14.00	14.07
Module Efficiency	(%)	20.70	20.90	21.10	21.30	21.30	21.48
Power Output Tolerance	(W)						0~+5

* Irradiance 1000W/m², Cell Temperature 25°C, Air Mass 1.5

Electrical Performance Parameters | NOCT

Maximum Power	P _{max} (W)	389.86	393.58	397.32	401.06	416.00	420.00
Maximum Power Voltage	V _{mp} (V)	32.02	38.26	38.50	38.74	39.43	39.64
Maximum Power Current	I _{mp} (A)	10.25	10.29	10.32	10.35	10.55	10.60
Open Circuit Voltage	V _{oc} (V)	45.58	45.79	46.00	46.21	46.68	46.81
Short Circuit Current	I _{sc} (A)	10.98	11.00	11.03	11.06	11.17	11.21

* Irradiance 800W/m², Ambient Temperature 20°C, Wind Speed 1m/s

Mechanical Data

Number of Cells	144 Cells (6×24)
Dimensions of Module L*W*H (mm)	2278×1134×35mm
Weight (kg)	27.1(±3%)
Glass	High transparency solar glass 3.2mm (0.13 inches)
Backsheet	White
Frame	Black/Silver, anodized aluminium alloy
J-Box	IP68 Rated
Cable	4.0mm ² (0.006 inches ²), Portrait: 200/200mm (9.06inches)
Number of diodes	3
Wind/ Snow Load	2400Pa/ 5400Pa*
Connector	MC Compatible

Temperature Ratings

Nominal Module Operating Temperature(NMOT)	45±2°C
Temperature Coefficient of I _{sc}	+0.045%/°C
Temperature Coefficient of V _{oc}	-0.275%/°C
Temperature Coefficient of P _{max}	-0.35%/°C

Maximum Ratings

Operational Temperature	-40~+85°C
Maximum System Voltage	1500V DC
Max Series Fuse Rating	25A

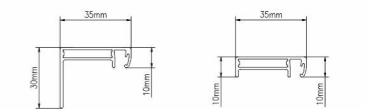
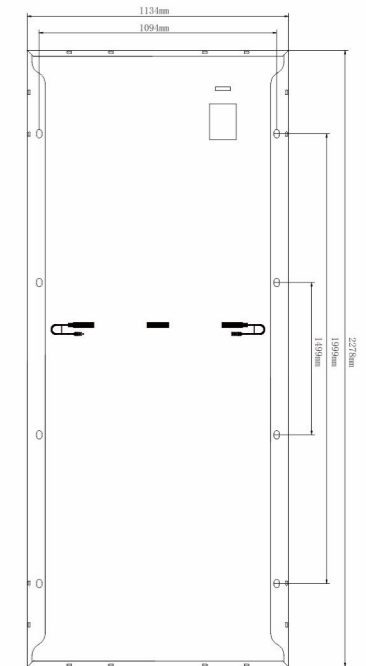
Packaging Configuration

Module per box	31 pieces/trust
17.5m car	32 trust/992 pieces
13.5m car	22 trust/682 pieces
Power measurement error	±3%

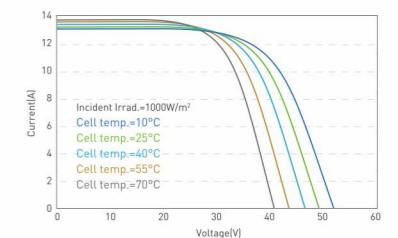
Optional

Connector: Original MC

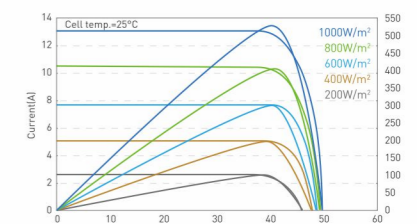
Module Dimension



I-V Curve at Different Temperature (545W)



I-V/P-V Curve at Different Irradiation (545W)



NOTE: To read the safety and installation instructions before using the product. SHINEAO Solar is copyright and this data sheet specification will be changed without notice.