La energía de la naturaleza

FICHAS TECNICAS EQUIPOS

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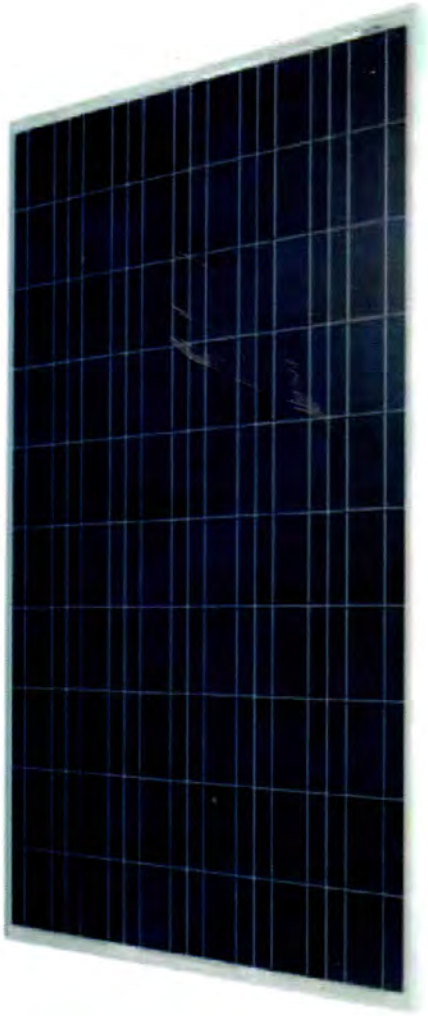
Upsolar

Distribuidor Autorizado:

greenenergy latin america
la energía de la naturaleza

6" Polycrystalline *PV module* 60 cells



Key Features

- **UL 1000V Rated**
- **Flexible Production***
- **Reinforced Module Warranty**
- **Universal Design (residential, commercial, ground mounted)**
- **Best seller for its performance/price ratio**

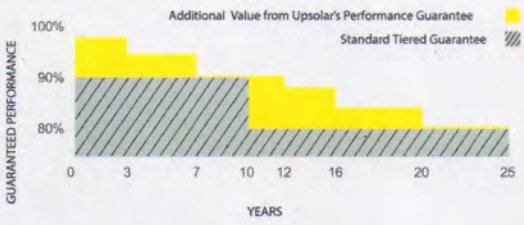
IEC 61215 61730 · c UL us CEC listed UL 1703 · CE · MCS · JET · TÜV · ICIM · Intertek

Secure Investment

Upsolar provides industry-leading product coverage for all our modules to ensure our customers achieve superior long-term value from their solar installations. In addition to a 10-year product warranty, which covers unanticipated module damage, Upsolar implements a 25-year performance guarantee known as the Reinforced Module Warranty.

Whereas traditional warranties offer only two trigger points over 25 years, the Reinforced Module Warranty features six trigger points at years 3, 7, 12, 16, 20 and 25. Upsolar also maintains relationships with third-party insurance providers to offer an additional layer of protection for interested parties.

Product guarantee for 10 years
Performance guarantee for 25 years



PowerGuard SPECIALTY INSURANCE SERVICES Upsolar has teamed up with PowerGuard Specialty Insurance Services to provide customers with a second level of product coverage. The 25-year, non-cancellable warranty is backed by PowerGuard's network of trusted providers, each rated A (Excellent) or better by A.M. Best, meaning the warranty stays in place with or without Upsolar's involvement.

*Upsolar has expanded its manufacturing operations in Asia and North America, keeping its modules duty-free in the event of new CVD or AD policies. Please ask about pricing and payment terms and conditions to meet your needs.

Electrical Characteristics @ STC*

MODEL	UP - M240P	UP - M245P	UP - M250P	UP - M255P	UP - M260P
Max Power Pm (Wp)	240	245	250	255	260
Max Power Voltage Vm (V)	30.2	30.4	30.6	30.8	31.0
Max Power Current Im (A)	7.95	8.06	8.17	8.28	8.39
Open-Circuit Voltage Voc (V)	37.6	37.8	38.0	38.2	38.4
Short-Circuit Current Isc (A)	8.40	8.45	8.50	8.55	8.60
Module Efficiency	14.8%	15.1%	15.4%	15.7%	16.0%
Maximum System Voltage (V)	1000(IEC)/1000(UL)				
Power Tolerance	0/+3%				
Series Fuse Rating (A)	20A				

*STC: Irradiance 1000 W/m², Module temperature 25ºC, AM=1.5

Poly Series
6" PV Module 60 cells

Components & Mechanical Data

Front Glass	High Transparency Tempered Glass 0.125" // 3.2 mm
Junction Box	IP 65 or above
Bypass Diode	3 diodes
Output Cables	1.0 m // IEC, UL approved (4 mm², 12AWG) (PV Wire Type)
Connectors	MC4, Amphenol H4 (IP67, IEC and UL approved)
Frame	Anodized aluminium alloy type 6063-T5
Encapsulation Material	EVA (0.018'' // 0.45 mm ± 0.001'' // 0.03 mm thickness)
Back Sheet	White multilayer polymer film
Temperature Range	-40°F to +194°F // -40°C to +90°C
Max Load	75 lbs / ft² (UL Standard) // 5400 Pa (IEC Standard)
Impact Resistance	Steel ball - 1.18 lbs // 535 g dropped from 51" // 1.3 m high

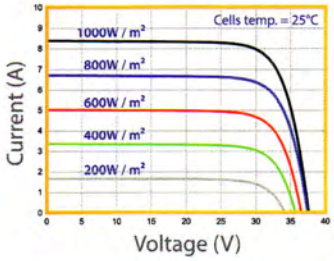
Specifications

Cells	Polycrystalline silicon solar cells 6" x 6" // 156 mm x 156 mm
Number of Cells	60 (6 x 10)
Dimensions (in // mm)	64.57 x 39.06 x 1.57 // 1640 x 992 x 40
Weight (lb // kg)	41.9 // 19.0

Temperature Coefficients

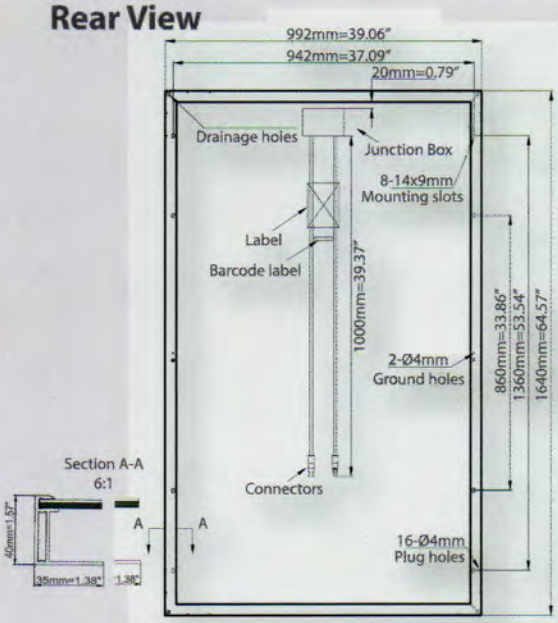
NOCT (°C)	45 ± 2
Temperature Coefficients of Isc (% / °C)	0.05 ± 0.01
Temperature Coefficients of Voc (% / °C)	-0.30 ± 0.02
Temperature Coefficients of Im (% / °C)	-0.02 ± 0.02
Temperature Coefficients of Vm (% / °C)	-0.42 ± 0.03
Temperature Coefficients of Pm (% / °C)	-0.43 ± 0.05

IV Curves



● Deviation of Vm (V), Im (A), Voc (V) and Isc (A) of ±2.5%

Rear View



Options Available

Zep Frame	SolarEdge Integrated
Solrif Frame	Frameless
Tigo Integrated	35mm Frame

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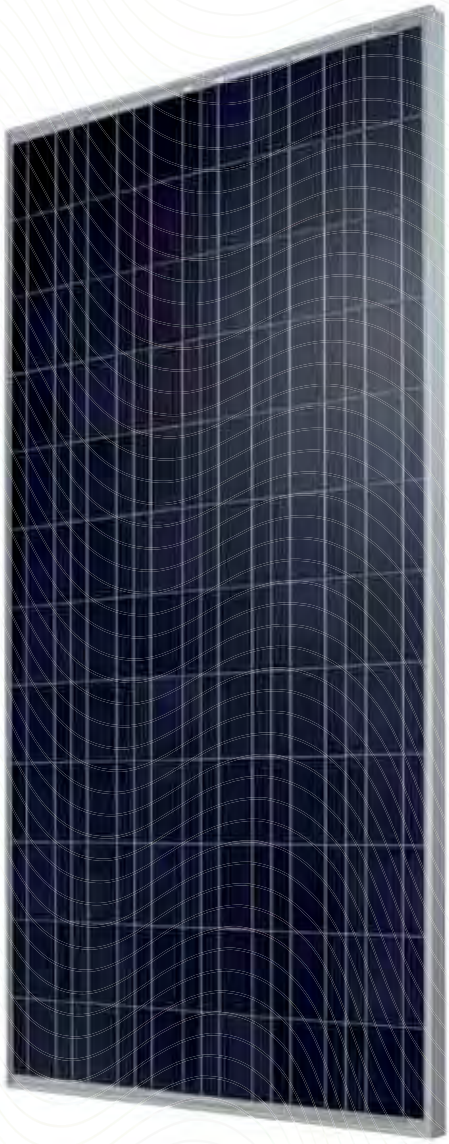
UP-EN-US-042014-V3

Upsolar

6" Polycrystalline *PV module* 72 cells



Key Features

- **UL 1000V Rated**
- **Flexible Production***
- **Reinforced Module Warranty**
- **Reinforced Structure (thicker glass, stronger frame)**
- **Ideal for ground mounted systems**

Secure Investment

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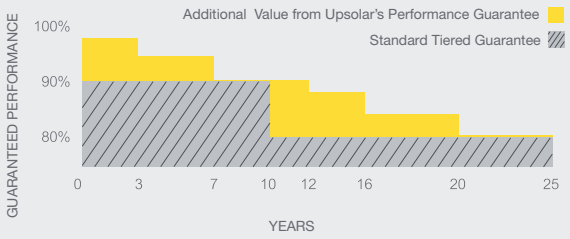
Whereas traditional warranties offer only two trigger points over 25 years, the Reinforced Module Warranty features six trigger points at years 3, 7, 12, 16, 20 and 25. Upsolar also maintains relationships with third-party insurance providers to offer an additional layer of protection for interested parties.

Product guarantee for 10 years
Performance guarantee for 25 years



PowerGuard SPECIALTY INSURANCE SERVICES

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*Upsolar has expanded its manufacturing operations in Asia and North America, keeping its modules duty-free in the event of new CVD or AD policies. Please ask about pricing and payment terms and conditions to meet your needs.

Electrical Characteristics @ STC*

MODEL	UP-M290P	UP-M295P	UP-M300P	UP-M305P	UP-M310P
Max Power Pm (Wp)	290	295	300	305	310
Max Power Voltage Vm (V)	35.5	35.7	35.9	36.1	36.3
Max Power Current Im (A)	8.17	8.26	8.36	8.45	8.54
Open-Circuit Voltage Voc (V)	45.2	45.4	45.6	45.8	46.0
Short-Circuit Current Isc (A)	8.50	8.58	8.66	8.74	8.82
Module Efficiency	14.9%	15.2%	15.5%	15.70%	16.0%
Maximum System Voltage (V)	1000(IEC)/1000(UL)				
Power Tolerance	0/+3%				
Series Fuse Rating (A)	20A				

*STC: Irradiance 1000 W/m², Module temperature 25°C, AM=1.5

Poly Series
6" PV Module 72 cells

Components & Mechanical Data

Front Glass	High Transparency Tempered Glass 0.157" // 4.0 mm
Junction Box	IP 65 or above
Bypass Diode	3 diodes
Output Cables	1.0 m // IEC, UL approved (4 mm², 12AWG) (PV Wire Type)
Connectors	MC4, Amphenol H4 (IP67, IEC and UL approved)
Frame	E-coated aluminium alloy type 6063-T5
Encapsulation Material	EVA (0.018'' // 0.45 mm ± 0.001'' // 0.03 mm thickness)
Back Sheet	White multilayer polymer film
Temperature Range	-40°F to +194°F // -40°C to +90°C
Max Load	75 lbs / ft² (UL Standard) // 5400 Pa (IEC Standards)
Impact Resistance	Steel ball - 1.18 lbs // 535 g dropped from 51" // 1.3 m high

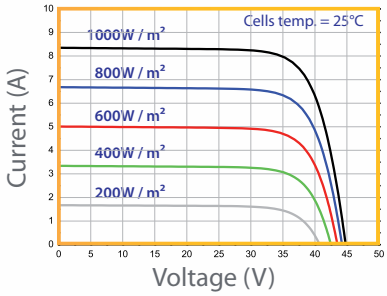
Specifications

Cells	Polycrystalline silicon solar cells 6" x 6" // 156 mm x 156 mm
Number of Cells	72 (6 x 12)
Dimensions (in // mm)	77 x 39.06 x 1.97 // 1956 x 992 x 50
Weight (lb // kg)	59.52 // 27.0

Temperature Coefficients

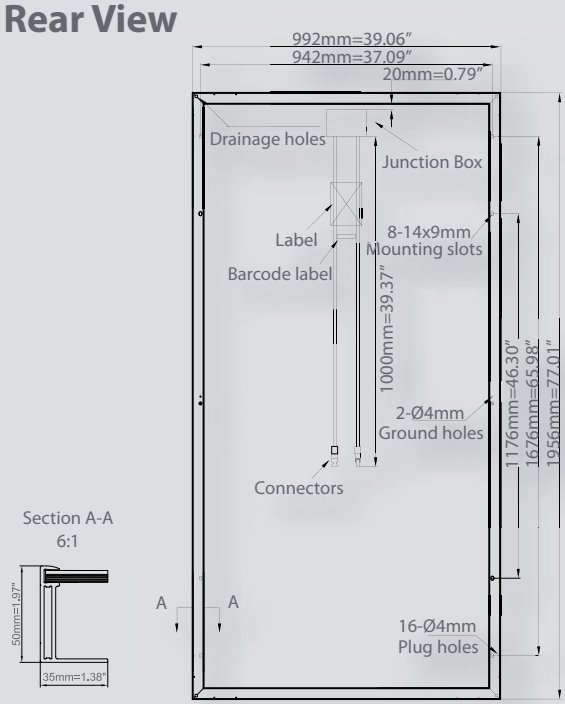
NOCT (°C)	45 ± 2
Temperature Coefficients of Isc (% / °C)	0.05 ± 0.01
Temperature Coefficients of Voc (% / °C)	-0.30 ± 0.02
Temperature Coefficients of Im (% / °C)	-0.02 ± 0.02
Temperature Coefficients of Vm (% / °C)	-0.42 ± 0.03
Temperature Coefficients of Pm (% / °C)	-0.43 ± 0.05

IV Curves



● Deviation of Vm (V), Im (A), Voc (V) and Isc (A) of ±2.5%

Rear View



Options Available

SolarEdge Integrated

Tigo Integrated

Zep Frame (N.America)

UP-EN-US-042014-V3

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inverter / charger

GEMKS Inverter

- Pure sine wave inverter
- Built-in MPPT solar charge controller
- Selectable input voltage range for home appliances and personal computers
- Selectable charging current based on applications
- Configurable AC/Solar input priority via LCD setting
- Compatible to mains voltage or generator power
- Auto restart while AC is recovering
- Overload and short circuit protection
- Smart battery charger design for optimized battery performance
- Cold start funtion
- Parallel operation with up to 6 units only available for 4KVA/5KVA
- Optional Remote Control Panel avaiable

GEMKS Inverter Selection Guide

MODEL	GEMKS 1K-24	GEMKS 1K-48	GEMKS 2K-24	GEMKS 3K-24	GEMKS 3K-48	GEMKS 4K	GEMKS 5K
Rated Power	1000VA	1000VA	2000VA	3000VA	3000VA	4000VA	5000VA
INPUT							
Voltage	230 VAC						
Selectable Voltage Range	170-280 VAC (For Personal Computers) 90-280 VAC (For Home Appliances)						
Frequency Range	50 Hz/60 Hz (Auto sensing)						
OUTPUT							
AC Voltage Regulation (Batt. Mode)	230VAC + 5%						
Surge Power	2000VA		4000VA	6000VA		8000VA	10000VA
Efficiency (Peak)	96%		96%				
Transfer Time	10 ms (For Personal Computers) 20 ms (For Home Appliances)						
Waveform	Pure sine wave						
BATTERY & AC CHARGER							
Battery Voltage	24 VDC	48 VDC	24 VDC	24 VDC	48 VDC	48 VDC	
Floating Charge Voltage	27 VDC	54 VDC	27 VDC	27 VDC	54 VDC	54 VDC	
Overcharge Protection	31 VDC	62 VDC	31 VDC	31 VDC	62 VDC	60 VDC	
SOLAR CHAGER & AC CHARGER							
Maximum PV Array Power	600 W	900 W	600 W	600 W	900 W	3000 W	
MPPT Range @ Operating Voltage	30VDC - 66VDC	60VDC - 88VDC	30VDC - 66VDC	30VDC - 66VDC	60VDC - 88VDC	60VDC - 115VDC	
Maximum PV Array Open Circuit Voltage	75 VDC	102 VDC	75 VDC	75 VDC	102 VDC	145 VDC	
Maximum Solar Charge Current	25A	18A	25A	25A	18 A	60 A	
Maximum AC Charge Current	20A	15A	30A	30A	15 A	60 A	
Maximum Charge Current	25A	18A	30A	30A	18 A	120A	
	AC Charger and solar charger can't work at the same time.						
Maximum Efficiency	98%						
Standby Power Consumption	2W						
PHYSICAL							
Dimension, D x W x H (mm)	100 x 272 x 355					140 x 295 x 540	
Net Weight (kgs)	6.8		7.0	7.4		12.5	13.5
OPERATING ENVIRONMENT							
Humidity	5% to 95% Relative Humidity(Non-condensing)						
Operating Temperature	0°C - 55°C						
Storage Temperature	-15°C - 60°C						

Product specifications are subject to change without further notice

greenenergy latin america

GEMKS Inverter Plus

Remote Control Panel

- Pure sine wave inverter
- Built-in MPPT solar charge controller
- Selectable input voltage range for home appliances and personal computers
- Selectable charging current based on applications
- Configurable AC/Solar input priority via LCD setting
- Compatible to mains voltage or generator power Auto
- restart while AC is recovering
- Overload and short circuit protection
- Smart battery charger design for optimized battery performance
- Cold start funtion
- Optional Remote Control Panel avaiable

inverter / charger

GEMKS Inverter Selection Guide

MODEL	GEMKS 2K-24 Plus	GEMKS 2K-48 Plus	GEMKS 3K-24 Plus	GEMKS 3K-48 Plus
Rated Power	2000VA	2000VA	3000VA	3000VA
INPUT				
Voltage	120 VACV or 230 VAC		230 VAC	
Selectable Voltage Range	95-140 VAC or 170-280 VAC (For Personal Computers) 65-140 VAC or 90-280 VAC (For Home Appliances)		170-280 VAC (For Personal Computers) 90-280 VAC (For Home Appliances)	
Frequency Range	50 Hz/60 Hz (Auto sensing)			
OUTPUT				
AC Voltage Regulation (Batt. Mode)	110/120 VAC + 5% (User selectable) or 230VAC + 5%		230VAC + 5%	
Surge Power	4000VA		6000VA	
E ciency (Peak)	96%			
Transfer Time	10 ms (For Personal Computers) 20 ms (For Home Appliances)			
Waveform	Pure sine wave			
BATTERY				
Battery Voltage	24 VDC	48 VDC	24 VDC	48 VDC
Floating Charge Voltage	27 VDC	54 VDC	27 VDC	54 VDC
Overcharge Protection	31 VDC	62 VDC	31 VDC	60 VDC
SOLAR CHAGER & AC CHARGER				
Maximum PV Array Power	1500 W	3000 W	1500 W	3000 W
MPPT Range @ Operating Voltage	30~ 115 VDC or 60~ 115 VDC	60~ 115 VDC	30~ 115 VDC or 60~ 115 VDC	60~ 115 VDC
Maximum PV Array Open Circuit Voltage	145 VDC			
Maximum Solar Charge Current	60A			
Maximum AC Charge Current	20A or 20A / 30A	10A or 10A / 15A	20A / 30A	10A / 15A
Maximum E ciency	98%			
Standby Power Consumption	2W			
PHYSICAL				
Dimension, D x W x H (mm)	140 x 295 x 479			
Net Weight (kgs)	11.5			
OPERATING ENVIRONMENT				
Humidity	5% to 95% Relative Humidity(Non-condensing)			
Operating Temperature	0ºC - 55ºC			
Storage Temperature	-15ºC - 60ºC			

Product specif i cations are subject to change without further notice

GELA GS Inverter

- Pure sine wave inverter
- Isolation design between input and output for safety guarantee
- Lightweight, stainless steel, and anodised aluminium casing
- Low power consumption for energy saving
- Over-temperature, DC reverse polarity and short circuit protection
- Low/High battery alarm and protection

DC/AC inverter without charger

GELA GS Inverter Selection Guide

MODEL	GELA GS 2K	GELA GS 3K
Rated Power	2000VA/1600W	3000VA/2400W
INPUT		
Nominal DC Voltage	24 VDC	
Cold Start Voltage	23 VDC	
Acceptable Voltage Range	21 VDC ~ 29 VDC	
Low DC Warning Voltage @ load <20% @ 20% ≦ load < 50% @ load ≧ 50%	 22.0 VDC 21.4 VDC 20.2 VDC	
Low DC Warning Return Voltage @ load <20% @ 20% ≦ load < 50% @ load ≧ 50%	 23.0 VDC 22.4 VDC 21.2 VDC	
Low DC Cut-off Voltage @ load <20% @ 20% ≦ load < 50% @ load ≧ 50%	 21.0 VDC 20.4 VDC 19.2 VDC	
Efficiency	> 90 %	
No Load Power Consumption	< 20 W	
Saving Mode Power Consumption	< 10 W	
OUTPUT		
AC Voltage Regulation (Batt. Mode)	230VAC ± 5%	
Surge Power	4000VA	6000VA
Waveform	Pure sine wave	
PHYSICAL		
Dimension, D X W X H (mm)	82 x 232 x 369	
Net Weight (kgs)	4.3	4.3
OPERATING ENVIRONMENT		
Humidity	5% to 95% Relative Humidity (Non-condensing)	
Operating Temperature	0°C - 55°C	
Storage Temperature	-15°C - 60°C	

Product specifications are subject to change without further notice

greenenergy latin america

GELA Plus Duo Off-Grid Inverter

- Pure sine wave inverter
- Built-in 2 strings of MPPT solar charge controller
- Enhanced AC charger to 60A
- Wide battery input range
- Selectable input voltage range for home appliances and personal computers
- Selectable high power charging current
- Configurable AC/Solar input priority via LCD setting
- Compatible to mains voltage or generator power
- Auto restart while AC is recovering
- Overload and short circuit protection
- Smart battery charger design for optimized battery performance
- Cold start function
- Optional SNMP card

GELA Plus Duo Off-Grid Inverter Selection Guide

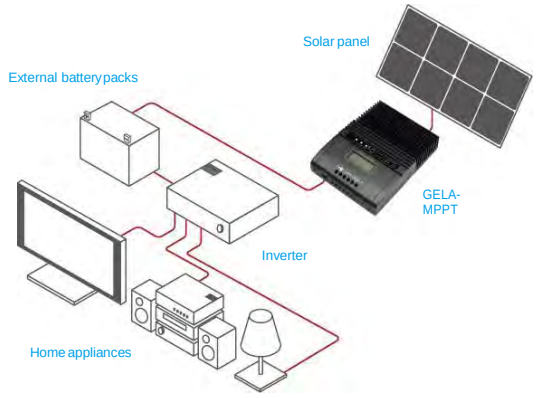
MODEL	GELA Plus Duo 1.5K-12	GELA Plus Duo 1.5K-48	GELA Plus Duo 3K-24	GELA Plus Duo 3K-48
Rated Power	1500VA/1200W		3000VA/2400W	
INPUT				
Voltage	230 VAC			
Selectable Voltage Range	170-280 VAC (For Personal Computers) 90-280 VAC (For Home Appliances)			
Frequency Range	50 Hz/60 Hz (Auto sensing)			
OUTPUT				
AC Voltage Regulation (Batt. Mode)	230VAC ± 5%			
Surge Power	3000VA		6000VA	
Efficiency (Peak)	90% ~ 93%			
Transfer Time	10 ms (For Personal Computers) 20 ms (For Home Appliances)			
Waveform	Pure sine wave			
BATTERY & AC CHARGER				
Battery Voltage	12 VDC	48 VDC	24 VDC	48 VDC
Floating Charge Voltage	13.5 VDC	54 VDC	27 VDC	54 VDC
Overcharge Protection	16 VDC	62 VDC	32 VDC	62 VDC
Maximum Charge Current	60A			
SOLAR CHARGER				
Maximum PV Array Power (2-MPPT tracker)	1000W	2000W	2000W	2000 W
MPPT Range @ Operating Voltage	15~80 VDC	60 ~ 90 VDC	30~80 VDC	60 ~ 90 VDC
Maximum PV Array Open Circuit Voltage	100 VDC			
Maximum Solar Charge Current	80A	40A	80A	40A
Maximum Efficiency	98%			
PHYSICAL				
Dimension, D x W x H (mm)	124 x 272 x 400			
Net Weight (kgs)	8.0			
OPERATING ENVIRONMENT				
Humidity	5% to 95% Relative Humidity(Non-condensing)			
Operating Temperature	-20°C to 55°C			
Storage Temperature	-30°C to 60°C			

Product specifications are subject to change without further notice

Gela Solar Charge Controller

- Intelligent Maximum Power Point Tracking technology
- Built-in DSP controller with high performance
- Automatic battery voltage detection (Only for 600W and 3KW)
- Battery temperature sensor (BTS) automatically provides temperature compensation (Only for 3KW)
- Three-stage charging optimizes battery performance
- Auto load-detection
- Multifunction LCD displays detailed information
- Reverse polarity protection for solar panel and battery
- Overcharge and overload protection
- Suitable for different battery types

Standalone Solar Power System:



Combined MPPT technology and DSP controller, GELA-MPPT will convert best voltage to charge battery based on varied temperature. Compared to traditional solar charge controller, it allows your solar panels to operate at their optimum power output voltage, providing higher efficiency up to 98% with lower power loss.

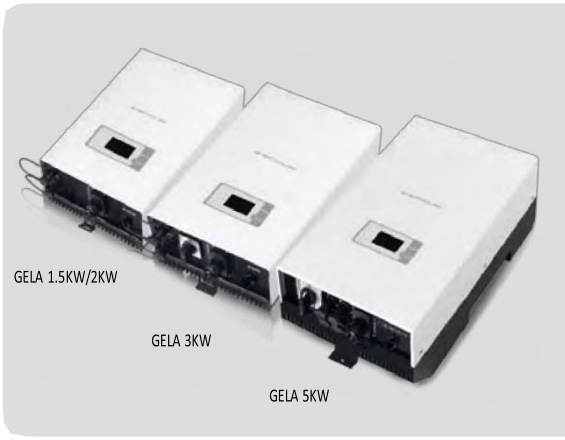
Integrated GELA-MPPT with inverter, solar panel, and external battery packs, it will become a standalone solar power system to generate green power for your home appliances. GELA-MPPT will convert solar power to charge external batteries, and then provide power to home appliances via inverter.

GELA MPPT Solar Charge Controller Selection Guide

MODEL	GELA-MPPT 300W	GELA- MPPT 600W		GELA -MPPT 850W	GELA-MPPT 3KW		
INPUT							
MPPT Range @ Operating Voltage	15 VDC ~ 33 VDC	15 VDC ~ 33 VDC	30 VDC ~ 66 VDC	45 VDC ~ 88 VDC	60 VDC ~ 115 VDC		
Maximum PV Array Open Circuit Voltage	50 VDC	50 VDC	75 VDC	98VDC	145VDC		
Maximum PV Array Power	300 W	300 W	600 W	850 W	800W	1600W	3200W
Maximum Current	18 A			17A	50 A		
OUTPUT							
Nominal Battery Voltage	12 VDC	12 VDC	24 VDC	36 VDC	12 VDC	24 VDC	48 VDC
Connected Battery Type	Sealed lead acid, vented, Gel, NiCd battery				Sealed lead acid, AGM or Gel		
Maximum Charging Current	25 A			20A	60 A		
Maximum Efficiency	98%						
Charging Method	Three stages: bulk, absorption, and floating						
PROTECTION							
Overload Protection	> 110% : audible alarm						
Overcharge Protection	Yes						
Polarity Reversal Protection @ Solar Cell & Battery	Yes						
INDICATORS							
LCD Panel	LCD panel indicating solar power, load level, battery voltage/capacity, charging current, and fault conditions						
LED Display	Three indicators for solar, charging, and load status						
PHYSICAL							
Dimension, D x W x H (mm)	135 x 170 x 57.5	220 x 170 x 57.5			315 x 165 x 128		
Net Weight (Kgs)	0.92	1.85			4.5		
Type of Mechanical Protection	IP 43				IP 31		
ENVIRONMENT							
Humidity	0 ~ 100% RH (No condensing)				5 ~ 95% RH (No condensing)		
Operating Temperature	-20°C to 55°C				0°C to 55°C		
Storage Temperature	-40°C to 75°C				-15°C to 60°C		
Altitude	0 ~ 3000 m						

Product specifications are subject to change without further notice

GELA On-Grid Inverter



- 1.5KW/2KW/3KW/5KW on-grid PV inverter
- Advanced DSP control technology delivers accurate data
- Smart independent MPPTs to enhance overall efficiency
- Up to 96% high conversion efficiency
- Modulized design for easy maintenance
- Industrial-grade components used for robust operation
- Data log up to 15 years
- IP 65 protection for outdoor and harsh environment
- Free monitoring software

GELA On-Grid Inverter Selection Guide

MODEL	GELA 1.5KW	GELA 2KW	GELA 3KW	GELA 5KW
INPUT(DC)				
Max. DC Power	1650 W	2200 W	3300 W	5000 W
Maximum DC Voltage	450 VDC	500 VDC	500 VDC	500 VDC
MPP Voltage Range	150 VDC ~ 400 VDC	200 VDC ~ 450 VDC	250 VAC ~ 500 VDC	180 VDC ~ 500 VDC
Nominal DC Voltage	360 VDC		370 VDC	
Start-up Voltage / Initial Feeding Voltage	120VDC / 150VDC		125VDC / 150VDC	
Maximum Input Current	1 x 11A		1 x 13A	2 x 15A
Number of MPP Trackers / Strings per MPP Tracker	1 / A:1		1 / A:1	2 / A:1;B:1
OUTPUT(AC)				
AC Nominal Power	1500 W	2000 W	3000 W	4600 W
Maximum AC Apparent Power	1600 VA	2100 VA	3000 VA	4600 VA
Nominal AC Voltage	230 VAC			
AC Voltage Range	184-264 VAC*			
AC Grid Frequency	50 Hz / 60 Hz			
Nominal Output Current	6.6 A	8.7A	13 A	20 A
Power Factor @ Rated Power	> 0.99			
EFFICIENCY				
Maximum Efficiency	96%		97.0%	97.0%
European Efficiency @ Nominal Voltage & 100% Load	95%		96.0%	96.0%
PROTECTION				
DC Reverse-Polarity Protection	Yes			
Ground Fault Monitoring	Yes			
Grid Monitoring	Yes			
AC Short Circuit Protection	Yes			
Over Current Protection	30 A	30 A	30 A	50 A
PHYSICAL				
Dimension, DxWxH(mm)	136.5 x 268.5 x 410		160 x 270 x 450	182 x 308 x 515
Net Weight (kgs)	11.5	11.5	15.0	20.0
INTERFACE				
Intelligent Slot	USB & RS-232 card / Option: SNMP card and Modbus card			
ENVIRONMENT				
Humidity	0 ~ 100% RH (No condensing)			
Operating Temperature	-25°C to 60°C			
Altitude	0 ~ 1000 m**			
COMPLIANCE				
Standard	CE, VDE-AR-N 4105, VDE-0126-1-1, IEC62109			

*The AC Voltage Range may vary depending on different country grid standard
**Power derating 1% every 100 m when altitude is over 1000m.
Product specifications are subject to change without further notice.

CE VDE-AR-N 4105
VDE 0126-1-1

greenenergy latin america

Gela InfiniSolar: On-Grid Inverter with Energy Storage

Innovative and Cost-effective Power Solution

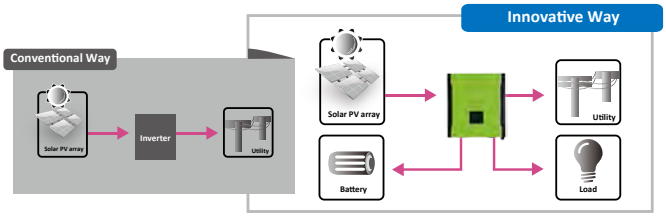
Gela InfiniSolar is a flexible and intelligent hybrid inverter which utilizes solar power, AC utility, and battery power source to supply continuous power. It's a simple and smart solar power storage system for home users to either store energy into battery and wait for night time usage or use for self-consumption first depending on demands. Priority for power source can be programmed and set up through smart software. During night time or power failure, it will automatically extract power from battery. In this way, it will reduce the dependence on the utility.

- On-Grid Inverter with Energy Storage
- Self-consumption and Feed-in to the grid
- Programmable supply priority for PV, Battery or Grid
- User-adjustable battery charging current suits different types of batteries
- Programmable multiple operations modes: Grid tie, Off grid, and grid-tie with backup
- Built-in timer for various mode of on/off operation
- Multiple communication for USB, RS-232, Modbus and SNMP
- Monitoring software for real time status display and control

Gela InfiniSolar 2KW/3KW Plus **Gela** InfiniSolar 5KW **Gela** InfiniSolar 3-phase 10KW

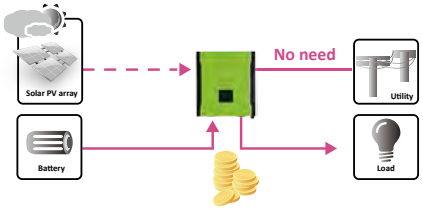
Feed-in is not only choice

In comparison with conventional grid-tie inverter, Gela InfiniSolar is able to not only feed- in power to grid but also store solar power to battery for future usage and directly power to the loads.



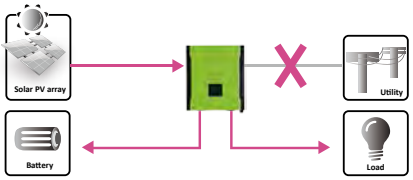
Save money by discharging battery for self-consumption first

Gela InfiniSolar can save money by using battery energy first when PV energy is low. Until battery energy is low, Gela InfiniSolar will extract AC power from the grid.



Power backup when AC failed

Gela InfiniSolar can operate as an off-grid inverter to provide continuous power even without the grid. It's perfect power solution for remote regions or temporary AC power source such as camping or flea market.



greenenergy latin america

Gela InfiniSolar On-grid Inverter with Energy Storage Selection Guide

MODEL	Gela InfiniSolar 2KW	Gela InfiniSolar Plus 3KW
PHASE	1-phase in / 1-phase out	
RATED OUTPUT POWER	2000 W	3000 W
MAXIMUM CHARGING POWER	1200 W	1200 W
GRID-TIE OPERATION		
PV INPUT (DC)		
Maximum PV Input Power	2250W	4500W
Nominal DC Voltage / Maximum DC Voltage	300 VDC / 350 VDC	360 VDC / 500 VDC
Start-up Voltage / Initial Feeding Voltage	80 VDC / 120 VDC	116 VDC / 150 VDC
MPP Voltage Range	150 VDC ~ 320 VDC	250 VDC ~ 450 VDC
Number of MPP Trackers / Maximum Input Current	1 / 1 x 15 A	1 / 1 x 18 A
GRID OUTPUT (AC)		
Nominal Output Voltage	101/110/120/127 VAC	208/220/230/240 VAC
Output Voltage Range	88 - 127 VAC*	184 - 264.5 VAC*
Nominal Output Current	18 A	13 A
Power Factor	> 0.99	
EFFICIENCY		
Maximum Conversion Efficiency (DC/AC)	95%	96%
European Efficiency@ Vnominal	94%	95%
OFF-GRID OPERATION		
AC INPUT		
AC Start-up Voltage/Auto Restart Voltage	60 - 70 VAC / 85 VAC	120 - 140 VAC / 180 VAC
Acceptable Input Voltage Range	80 - 130 VAC	170 - 280 VAC
Maximum AC Input Current	30 A	
PV INPUT (DC)		
Maximum DC Voltage	350 VDC	500 VDC
MPP Voltage Range	150 VDC ~ 320 VDC	250 VDC ~ 450 VDC
Number of MPP Trackers / Maximum Input Current	1 / 1 x 15 A	1 / 1 x 18 A
BATTERY MODE OUTPUT (AC)		
Nominal Output Voltage	101/110/120/127 VAC	202/208/220/230/240 VAC
Output Waveform	Pure Sinewave	
Efficiency (DC to AC)	90%	93%
HYBRID OPERATION		
PV INPUT (DC)		
Nominal DC Voltage / Maximum DC Voltage	300 VDC / 350 VDC	360 VDC / 500 VDC
Start-up Voltage / Initial Feeding Voltage	80 VDC / 120 VDC	116 VDC / 150 VDC
MPP Voltage Range	150 VDC ~ 320 VDC	250 VDC ~ 450 VDC
Number of MPP Trackers / Maximum Input Current	1 / 1 x 15 A	1 / 1 x 18 A
GRID OUTPUT (AC)		
Nominal Output Voltage	101/110/120/127 VAC	202/208/220/230/240 VAC
Output Voltage Range	88-127 VAC*	184 - 264.5 VAC*
Nominal Output Current	18 A	13 A
AC INPUT		
AC Start-up Voltage / Auto Restart Voltage	60 - 70 VAC / 85 VAC	120 - 140 VAC / 180 VAC
Acceptable Input Voltage Range	80 - 130 VAC	170 - 280 VAC
Maximum AC Input Current	30 A	
BATTERY MODE OUTPUT (AC)		
Nominal Output Voltage	101/110/120/127 VAC	202/208/220/230/240 VAC
Efficiency (DC to AC)	90%	93%
BATTERY & CHARGER		
Nominal DC Voltage	48 VDC	
Maximum Charging Current	Default 25A, 5A - 25A (Adjustable)	
GENERAL		
PHYSICAL		
Dimension, D X W X H (mm)	107 x 438 x 480	
Net Weight (kgs)	15.5	
INTERFACE		
Communication Port	RS-232/USB	
Intelligent Slot	Optional SNMP, Modbus, and AS-400 cards available	
ENVIRONMENT		
Humidity	0 ~ 90% RH (No condensing)	
Operating Temperature	0 to 40°C	0 to 40°C
Altitude	0 ~ 1000 m**	

*These figures may vary depending on different AC voltage and country requirements.
**Power derating 1% every 100 m when altitude is over 1000m.
Product specifications are subject to change without further notice.

CE VDE-AR-N 4105
VDE 0126-1-1
AS4777, AS/NZS3100
NRS-097-2-1

On-Grid Inverter with Energy Storage

Gela Inifinisolar On-grid Inverter with Energy Storage Selection Guide

MODEL	Gela InfiniSolar 5KW
PHASE	1-phase in / 1-phase out
RATED OUTPUT POWER	5000 W
MAXIMUM CHARGING POWER	4800 W
GRID-TIE OPERATION	
PV INPUT (DC)	
Maximum PV Input Power	10000W
Nominal DC Voltage / Maximum DC Voltage	720 VDC / 900 VDC
Start-up Voltage / Initial Feeding Voltage	200 VDC / 250 VDC
MPP Voltage Range	250 VDC ~ 850 VDC
Number of MPP Trackers / Maximum Input Current	2 / 2 x 10.0A
GRID OUTPUT (AC)	
Nominal Output Voltage	230 VAC
Output Voltage Range	184 - 265 VAC*
Nominal Output Current	21 A
Power Factor	> 0.99
EFFICIENCY	
Maximum Conversion Efficiency (DC/AC)	> 96%
European Efficiency@ Vnominal	> 95%
OFF-GRID OPERATION	
AC INPUT	
AC Start-up Voltage/Auto Restart Voltage	120 - 140 VAC / 180 VAC
Acceptable Input Voltage Range	170 - 280 VAC
Maximum AC Input Current	40A (Include Loads and Charging)
PV INPUT (DC)	
Maximum DC Voltage	900 VDC
MPP Voltage Range / Full Load MPP Voltage Range	350 VDC ~ 850 VDC
Number of MPP Trackers / Maximum Input Current	2 / 2 x 10.0A
BATTERY MODE OUTPUT (AC)	
Nominal Output Voltage	230 VAC
Output Waveform	Pure Sinewave
Efficiency (DC to AC)	91%
HYBRID OPERATION	
PV INPUT (DC)	
Nominal DC Voltage / Maximum DC Voltage	720 VDC / 900 VDC
Start-up Voltage / Initial Feeding Voltage	320 VDC / 350 VDC
MPP Voltage Range /	350 VDC ~ 850 VDC
Number of MPP Trackers / Maximum Input Current	2 / 2 x 10.0A
GRID OUTPUT (AC)	
Nominal Output Voltage	230 VAC
Output Voltage Range	184 - 265 VAC*
Nominal Output Current	21A
AC INPUT	
AC Start-up Voltage / Auto Restart Voltage	120 - 140 VAC / 180 VAC
Acceptable Input Voltage Range	170 - 280 VAC
Maximum AC Input Current	40A
BATTERY MODE OUTPUT (AC)	
Nominal Output Voltage	230 VAC
Efficiency (DC to AC)	91%
BATTERY & CHARGER	
Nominal DC Voltage	48 VDC
Maximum Charging Current	Default 60A, 5A - 60A (Adjustable)
GENERAL	
PHYSICAL	
Dimension, D X W X H (mm)	522 x 500 x 167.5
Net Weight (kgs)	40
INTERFACE	
Communication Port	RS-232/USB
Intelligent Slot	Optional SNMP, Modbus, and AS-400 cards available
ENVIRONMENT	
Humidity	0 ~ 90% RH (No condensing)
Operating Temperature	-10 to 55°C
Altitude	0 ~ 1000 m*

*These figures are based on VDE-4105 standard. All figures may vary depending on different AC voltage and country requirements.
*Power derating 1% every 100 m when altitude is over 1000m
Product specifications are subject to change without further notice.

CE VDE-AR-N 4105
VDE 0126-1-1

greenenergy latin america

Gela Inifinisolar Three Phase On-grid Inverter with Energy Storage Selection Guide

MODEL	Gela InfiniSolar Three Phase 10KW
PHASE	3-phase in / 3-phase out
RATED OUTPUT POWER	10000 W
MAXIMUM CHARGING POWER	9600 W
GRID-TIE OPERATION	
PV INPUT (DC)	
Maximum PV Input Power	14850W
Nominal DC Voltage / Maximum DC Voltage	720 VDC / 900 VDC
Start-up Voltage / Initial Feeding Voltage	320 VDC / 350 VDC
MPP Voltage Range / Full Load MPP Voltage Range	350 VDC ~ 850 VDC / 400 VDC ~ 800 VDC
Number of MPP Trackers / Maximum Input Current	2 / 2 x 18.6A
GRID OUTPUT (AC)	
Nominal Output Voltage	230 VAC (P-N) / 400 VAC (P-P)
Output Voltage Range	184 - 265 VAC per phase
Nominal Output Current	14.5 A per phase
Power Factor	> 0.99
EFFICIENCY	
Maximum Conversion Efficiency (DC/AC)	> 96%
European Efficiency@ Vnominal	> 95%
OFF-GRID OPERATION	
AC INPUT	
AC Start-up Voltage/Auto Restart Voltage	120 - 140 VAC per phase / 180 VAC per phase
Acceptable Input Voltage Range	170 - 280 VAC per phase
Maximum AC Input Current	40A
PV INPUT (DC)	
Maximum DC Voltage	900 VDC
MPP Voltage Range / Full Load MPP Voltage Range	350 VDC ~ 850 VDC / 400 VDC ~ 800 VDC
Number of MPP Trackers / Maximum Input Current	2 / 2 x 18.6A
BATTERY MODE OUTPUT (AC)	
Nominal Output Voltage	230 VAC (P-N) / 400 VAC (P-P)
Output Waveform	Pure Sinewave
Efficiency (DC to AC)	91%
HYBRID OPERATION	
PV INPUT (DC)	
Nominal DC Voltage / Maximum DC Voltage	720 VDC / 900 VDC
Start-up Voltage / Initial Feeding Voltage	320 VDC / 350 VDC
MPP Voltage Range / Full Load MPP Voltage Range	350 VDC ~ 850 VDC / 400 VDC ~ 800 VDC
Number of MPP Trackers / Maximum Input Current	2 / 2 x 18.6A
GRID OUTPUT (AC)	
Nominal Output Voltage	230 VAC (P-N) / 400 VAC (P-P)
Output Voltage Range	184 - 265 VAC per phase
Nominal Output Current	14.5 A per phase
AC INPUT	
AC Start-up Voltage / Auto Restart Voltage	120 - 140 VAC per phase / 180 VAC per phase
Acceptable Input Voltage Range	170 - 280 VAC per phase
Maximum AC Input Current	40A
BATTERY MODE OUTPUT (AC)	
Nominal Output Voltage	230 VAC (P-N) / 400 VAC (P-P)
Efficiency (DC to AC)	91%
BATTERY & CHARGER	
Nominal DC Voltage	48 VDC
Maximum Charging Current	Default 60A, 10A - 200A (Adjustable)
GENERAL	
PHYSICAL	
Dimension, D X W X H (mm)	622 x 500 x 167.5
Net Weight (kgs)	45
INTERFACE	
Communication Port	RS-232/USB and CAN Interface
Intelligent Slot	Optional SNMP, Modbus, and AS-400 cards available
ENVIRONMENT	
Humidity	0 ~ 90% RH (No condensing)
Operating Temperature	-10 to 55°C
Altitude	0 ~ 1000 m*

*Power derating 1% every 100 m when altitude is over 1000m
Product specifications are subject to change without further notice.

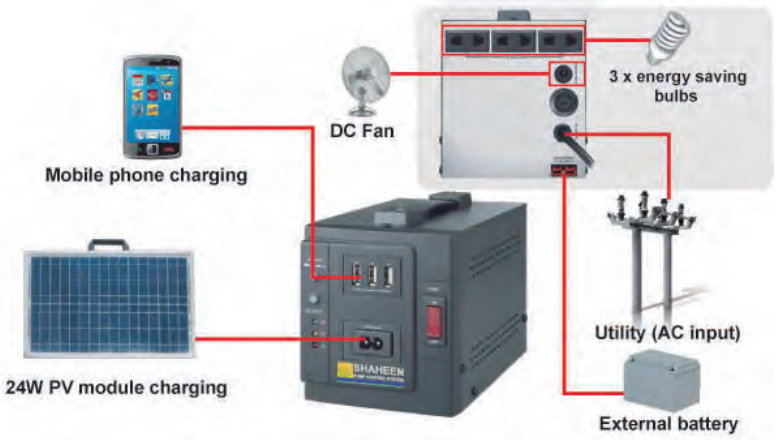
CE VDE-AR-N 4105
VDE 0126-1-1

On-Grid Inverter with Energy Storage

GelaPalm Lighting Solution

- 70W DC UPS
- 3 sets DC-powered outlets for energy saving bulbs
- 1 x 12V DC output connector for DC fan
- Accept either PWM solar charger ports for mobile phones
- Optional 3 x 5V USB charger ports for mobile phones
- Off mode charging
- Overload protection in battery mode and short circuit protection
- 3-step charging design for extended battery life
- Optional lamp holder with 2m cable

Devices:



GelaPalm Lighting Solution Specification

MODEL		GelaPalm
CAPACITY		70 W
PV INPUT		
Maximum PV Array Open Circuit Voltage		30 VDC
Maximum Solar Charging Current		2 A
AC INPUT		
Nominal Voltage		230 VAC
Nominal Frequency		50/60 Hz (Auto sensing)
OUTPUT		
2-pin Sockets	Output Voltage (AC Mode)	230 VDC
	Output Voltage (Batt. Mode)	160-230 VDC + 10%
	Wavefrom (Batt. Mode)	DC Output
DC Connector		12VDC 2A x 1 pc
USB Charger (option)		5VDC 1A x 3pcs
BATTERY & CHARGER		
Battery Type and Numbers		12V 7Ah x 1 (Optional external battery)
Battery Voltage		12 VDC
Floating Voltage		13.7V +1.5%
Shutdown Voltage		11V
Typical Recharge Time		8 hours recover to 90% capacity
Total Charging Current´		1 A or 2 A (Selectable)
PROTECTION		
Full Protection		Overload Protection and short circuit protection
PHYSICAL		
Dimension. D x W x H (mm)		229 x 110 x 123.5
Net Weight (kgs)		3.8
OPERATING ENVIRONMENT		
Humidity		0-90 % RH @ 0- 40ºC (non-condensing)
Noise Level		Less than 40dB

• Total charging current incluides solar charger and AC charger.
Product specifications are subject tochange whithout further notice

GELA NVSPY-P/M500 (500W)

GELA NVSPY-P/M500 (500W)

Description

Advantage :

1) Useful. With DC and AC output, supply power for light, vedio, fan, TV,computer, small household appliances etc .
2) Long working time . You can add battery according to your needs .
3) Efficiency. High efficiency for charging and discharging , with LCD display show its working state .
4) Maintenance free. Don’t need to maintain frequently.
5) Two ways charging . Can be charged from solar panel or state grid .

Operation :

1) Face solar panel to the Sun .
2) Connect the generator with solar panel and battery .
3) The LCD display will show the system working state .
4) Once battery is fully charged , controller will automatically protectect the system .
5) When the output overload or battery capacity inadequate, controller will cut off to protect .

Parameter:

Item No.:	GELA **NVSPY-M500**	**GELA NVSPY-P500**
System continuous Power	500W	
Surge Power	1000W	
Output Waveform	Modified Sine Wave	Pure Sine Wave
AC Output voltage	100-120V or 220-240V	
DC Output	12VDC *3	
USB Port	5V 500mA	
Efficiency	87~93%	
Anti-voltage protection	Fuse	
Frequency	50Hz/60Hz	
DC voltage range	10V-15.5V	
BAT.Low Voltage shutdown	<10V	
BAT. Low Voltage alarm	10V-11V	
Overload protection	600W	
Solar controller built-in	12V 20A	
Ambient temperature range	-25 ℃ ~ 60℃	
Protection	Bat.Low Voltage Alarm&Shutdown,Over-Load,Over Temperature,Over Charge ,Over discharge ,Short-Circuit,Reverse Polarity	
Accessories		QTY
1	MC4 connector with 5 meter solar cable	1 set
2	DC Cable Clips,Grounding wire	1 set
3	3W LED with 4meters cable and switch	Optional
4	10 types mobile charger	Optional
5	Adapter charger	Optional
Package		
Product Size	330 * 234 * 100mm	
Net Weight	4.5Kgs	
Q'ty/Ctn	4	
Packing	Gift box	
Carton Size /Weight	73.2*44.5*46CM , 24Kgs	
Certification	CE-EMC/LVD,RoHS	
Warranty	12 Month	

GELA NV-P300

GELA NV-P300

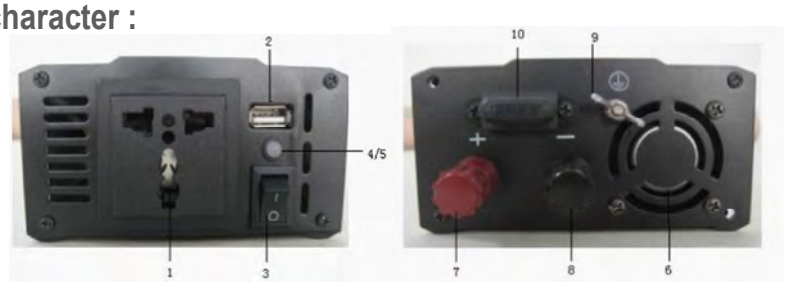
Description

Application:

1. Field operation : lighting, drilling, disaster relief, commercial promotions.
2. Hospital emergency rescue: surgical lighting, equipment use, etc.
3. Home Appliance: Electronic energy-saving fluorescent, incandescent, small television sets, refrigerator, etc.
4. Energe: solar system, wind system .

Conponents Display :

character :



1--- **AC output outlets** : can choose the socket type as you like .Output voltage 110V AC or 220V AC .
2---**USB port** : DC 5V , 500mA
3---**AC switch** : Enables output AC power at the AC outlets when switched ON.
4---**Green LED light** : indicates AC power is present at the AC outlets and the inverter is operating normally.
5---**Red LED light** : indicates inverter shutdown caused by low or high voltage, overload or excessive temperature .
6---**Thermovent** : with small fan built inside , can lower the temperature of inverter .
7----**Positive terminal** : connect with the positive (+） side of the battery .
8----**Negative terminal**: connect with the negative (-) side of the battery .
9----**Ground terminal** : connect to the ground , counseling electrical power .
10--- **Fuse** : can protect the inverter when the current is too excessive .

Auto protect functions:

These advanced safety features are built into the inverter. Electronic overload protection with automatic shutdown.
Built-in internal backup DC fuse provides added safety.
Low battery voltage warning followed by automatic shutdown.
High input voltage protection with automatic shutdown.
Over temperature protection with automatic shutdown.
Output short circuit protection.

Parameter :

Model	300W-121	300W-122	300W-241	300W-242
Rated Power	300W			
Peak Power	600W			
Input Voltage	12V		24V	
Output Voltage	110V	220V	110V	220V
Output waveform	pure sine wave			
Input voltage	12V/24V			
Output voltage	110-120V/220-240V AC			
Output frequency	50/60Hz ±3			
USB port	5V 500mA (optional)			
Optimum Efficiency	90 %			
No Load Current Draw	less than 0.2A			
Low Battery Alarm	DC 10.5~11.5V , 21.5~23V			
Auto Low Battery Shutdown	DC 9.5~10.5V, 20.5~22V			
Cooling Fan	single			
AC Receptacles	single			
Certification	CE , RoHS, FCC			
G.W	1.2KG			
Packing	15pcs/carton , 19kg			
Warranty	15 months			

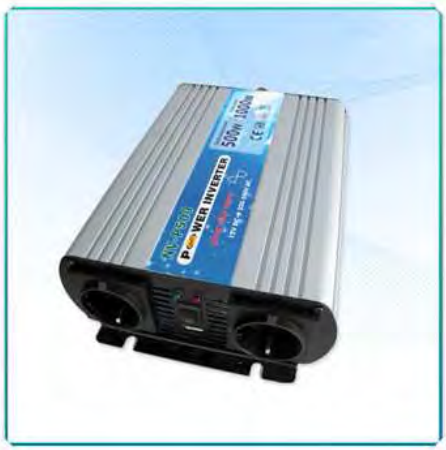
Caution :

1. Do not connect live AC power to the inverter's AC outlets. The inverter will be damaged even if it is switched off.
2. Do not expose the inverter to temperatures exceeding 104℉ (40℃)
3. Wrong rated DC input will not supply enough voltage or damage the inverter.
4. Any internal adjustment on the inverter is prohibit!
5. Do not use the inverter with the following equipment:

a. Small battery operated products such as rechargeable flashlights, rechargeable shavers, and night-lights that are plugged directly into an AC receptacle to recharge.

b. Certain battery chargers for battery pack used in hand powered tools. These chargers will have warning labels stating that dangerous voltages are present at the charger's battery terminals.

GELA V-P600>



GELA NV-P600

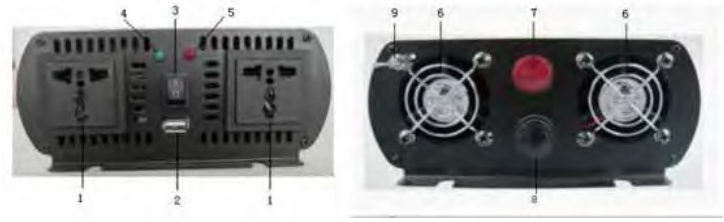
Description

Application:

1. Field operation : lighting, drilling, disaster relief, commercial promotions.
2. Hospital emergency rescue: surgical lighting, equipment use, etc.
3. Home Appliance: Electronic energy-saving fluorescent, incandescent, small television sets, refrigerator, etc.
4. Energe: solar system, wind system .

Conponents Display :

Character :



1--- **AC output outlets** : can choose the socket type as you like .Output voltage 110V AC or 220V AC .
2---**USB port** : DC 5V , 500mA
3---**AC switch** : Enables output AC power at the AC outlets when switched ON.
4---**Green LED light** : indicates AC power is present at the AC outlets and the inverter is operating normally.
5---**Red LED light** : indicates inverter shutdown caused by low or high voltage, overload or excessive temperature.
6----**Thermovent** : with small fan built inside , can lower the temperature of inverter .

7----**Positive terminal** : connect with the positive (+） side of the battery .
8----**Negative terminal**: connect with the negative (-) side of the battery .
9----**Ground terminal** : connect to the ground , counseling electrical power .
10--- **Fuse** : can protect the inverter when the current is too excessive .

Auto protect functions

These advanced safety features are built into the inverter. Electronic overload protection with automatic shutdown.
Built-in internal backup DC fuse provides added safety.
Low battery voltage warning followed by automatic shutdown.
High input voltage protection with automatic shutdown.
Over temperature protection with automatic shutdown.
Output short circuit protection.

Parameter :

Model	600-121	600-122	600-241	600-242
Rated Power	600W			
Peak Power	1200W			
Input Voltage	DC12V		DC24V	
Output Voltage	110V	220V	110V	220V
Output waveform	Pure Sine Wave			
Input voltage	12V/24V			
Output voltage	110-120V/220-240V AC			
Output frequency	50/60Hz ±3			
USB port	5V 500mA (optional)			
Optimum Efficiency	90 %			
No Load Current Draw	less than 0.5A (12V),less than 0.4A(24V)			
Low Battery Alarm	DC 10.5~11.5V , 21.5~23V			
Auto Low Battery Shutdown	DC 9.5~10.5V, 20.5~22V			
Cooling Fan	double			
AC Receptacles	double			
Certification	CE , RoHS, FCC			
N.W./unit	2.3kg			
Packing	10pcs/carton , Gift box			
Warranty	12 months			

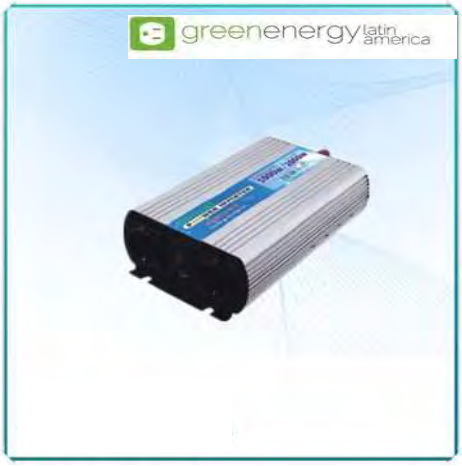
Caution :

1. Do not connect live AC power to the inverter's AC outlets. The inverter will be damaged even if it is switched off.
2. Do not expose the inverter to temperatures exceeding 104℉ (40℃)
3. Wrong rated DC input will not supply enough voltage or damage the inverter.
4. Any internal adjustment on the inverter is prohibit!
5. Do not use the inverter with the following equipment:

a. Small battery operated products such as rechargeable flashlights, rechargeable shavers, and night-lights that are plugged directly into an AC receptacle to recharge.

b. Certain battery chargers for battery pack used in hand powered tools. These chargers will have warning labels stating that dangerous voltages are present at the charger's battery terminals.

GELA NV-P1000



GELA NV-P1000

Description

Application:

1.Field operation : lighting, drilling, disaster relief, commercial promotions.
2.Hospital emergency rescue: surgical lighting, equipment use, etc.
3.Home Appliance: Electronic energy-saving fluorescent, incandescent, small television sets, refrigerator, etc.
4. Energe: solar system, wind system .

Components Display :

Character:

1--- **AC output outlets** : can choose the socket type as you like .Output voltage 110V AC or 220V AC .
2---**USB port** : DC 5V , 500mA
3---**AC switch** : Enables output AC power at the AC outlets when switched ON.
4---**Green LED light** : indicates AC power is present at the AC outlets and the inverter is operating normally.
5----**Red LED light** : indicates inverter shutdown caused by low or high voltage, overload or excessive temperature.
6----**Thermovent** : with small fan built inside , can lower the temperature of inverter .
7----**Positive terminal** : connect with the positive (+） side of the battery .
8----**Negative terminal**: connect with the negative (-) side of the battery .
9----**Ground terminal** : connect to the ground , counseling electrical power .
10--- **Fuse** : can protect the inverter when the current is too excessive .

Parameter :

Model	1000-121	1000-122	1000-241	1000-242
Rated Power	1000W			
Peak Power	2000W			
Input Voltage	DC12V		DC24V	
Output Voltage	110V	220V	110V	220V
Output waveform	Pure Sine Wave			
Input voltage	12V/24V			
Output voltage	110-120V/220-240V AC			
Output frequency	50/60Hz ±3			
USB port	5V 500mA (optional)			
Optimum Efficiency	90 %			
No Load Current Draw	less than 0.8A (12V),less than 0.5A(24V)			
Low Battery Alarm	DC 10.5~11.5V , 21.5~23V			
Auto Low Battery Shutdown	DC 9.5~10.5V, 20.5~22V			
Cooling Fan	double			
AC Receptacles	double			
Certification	CE , RoHS, FCC			
N.W./unit	2.5kg			
Packing	10pcs/carton , Gift box			
Warranty	12 months			

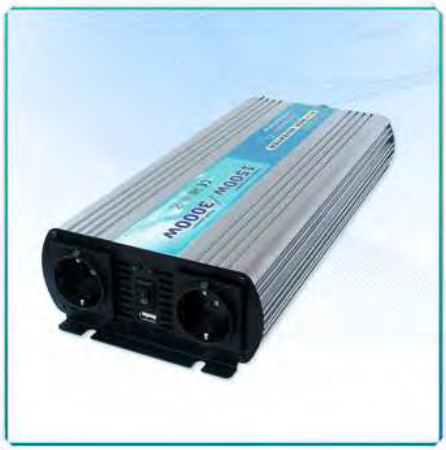
Caution :

1. Do not connect live AC power to the inverter's AC outlets. The inverter will be damaged even if it is switched off.
2. Do not expose the inverter to temperatures exceeding 104℉ (40℃)
3. Wrong rated DC input will not supply enough voltage or damage the inverter.
4. Any internal adjustment on the inverter is prohibit!
5. Do not use the inverter with the following equipment:

a. Small battery operated products such as rechargeable flashlights, rechargeable shavers, and night-lights that are plugged directly into an AC receptacle to recharge.

b. Certain battery chargers for battery pack used in hand powered tools. These chargers will have warning labels stating that dangerous voltages are present at the charger's battery terminals.

GELA NV-P1500



GELA NV-P1500

Description

Application:

1.Field operation : lighting, drilling, disaster relief, commercial promotions.
2.Hospital emergency rescue: surgical lighting, equipment use, etc.
3.Home Appliance: Electronic energy-saving fluorescent, incandescent, small television sets, refrigerator, etc.
4. Energe: solar system, wind system .

Components Display :

Character:

1--- **AC output outlets** : can choose the socket type as you like .Output voltage 110V AC or 220V AC .
2---**USB port** : DC 5V , 500mA
3---**AC switch** : Enables output AC power at the AC outlets when switched ON.
4---**Green LED light** : indicates AC power is present at the AC outlets and the inverter is operating normally.
5----**Red LED light** : indicates inverter shutdown caused by low or high voltage, overload or excessive temperature.
6----**Thermovent** : with small fan built inside , can lower the temperature of inverter .
7----**Positive terminal** : connect with the positive (+） side of the battery .
8----**Negative terminal**: connect with the negative (-) side of the battery .
9----**Ground terminal** : connect to the ground , counseling electrical power .
10--- **Fuse** : can protect the inverter when the current is too excessive .

Parameter :

Model	1500-121	1500-122	1500-241	1500-242
Rated Power	1500W			
Peak Power	3000W			
Input Voltage	DC12V		DC24V	
Output Voltage	110V	220V	110V	220V
Output waveform	pure sine wave			
Input voltage	12V/24V			
Output voltage	110-120V/220-240V AC			
Output frequency	50/60Hz ±3			
USB port	5V 500mA (optional)			
Optimum Efficiency	90 %			
No Load Current Draw	less than 0.8A			
Low Battery Alarm	DC 10.5~11.5V , 21.5~23V			
Auto Low Battery Shutdown	DC 9.5~10.5V, 20.5~22V			
Cooling Fan	single			
AC Receptacles	double			
Certification	CE , RoHS, FCC			
G.W	4.2KG			

Caution :

1. Do not connect live AC power to the inverter's AC outlets. The inverter will be damaged even if it is switched off.
2. Do not expose the inverter to temperatures exceeding 104°F (40°C)
3. Wrong rated DC input will not supply enough voltage or damage the inverter.
4. Any internal adjustment on the inverter is prohibit!
5. Do not use the inverter with the following equipment:

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b. Certain battery chargers for battery pack used in hand powered tools. These chargers will have warning labels stating that dangerous voltages are present at the charger's battery terminals.

GELA series

GELA-WVC295

- DC input voltage range：22-50VDC
- AC output voltage range：80-160VAC/180-260VAC
- AC output power ：260W
- AC frequency range：50Hz/60Hz
- G.W.：0.88KG
- Size：245mm*200mm*30mm

Enquiry

Description

GELA-WVC295 Series Micro Inverter

Output Power:260W;For Home Station,*MW Station,Low Cost,Easy Intallation,For Monocrystalline Silicon & Polycrystalline Silicon

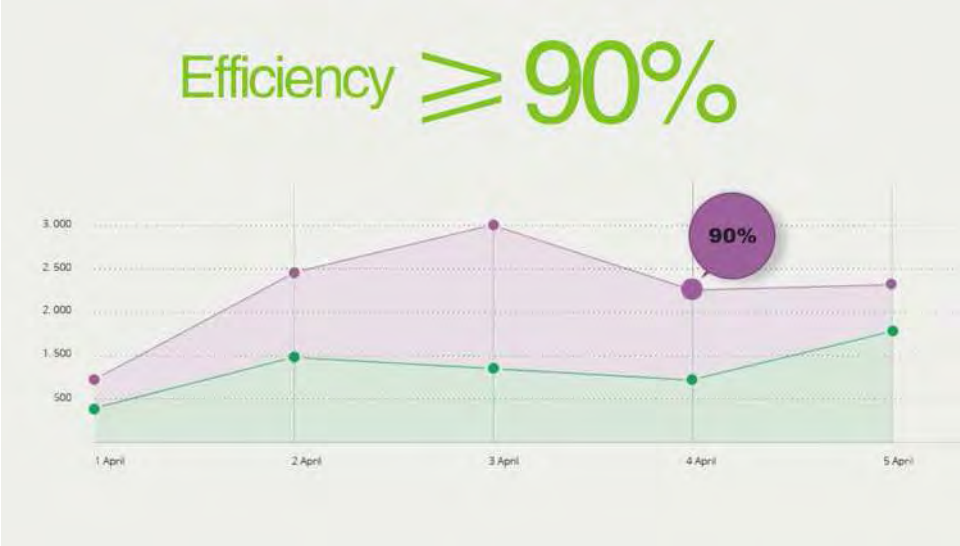
Product Description

GELA-WVC295 Series Using IP67 waterproof streamline design, Can effectively prevent rainwater on the surface erosion, Built-in high-performance Maximum Power Point Tracking(MPPT)Function,Better able to track changes in the solar luminosity and control different output power, Effectively capture and collect sunlight. AC electric power transmission using the reverse transmission technology, Is one of our patented technology, The inverter output power can provide load priority use, Extra electricity to the grid, Efficient use of the inverter to the power emitted, Electricity transmission rate of up to 99%.

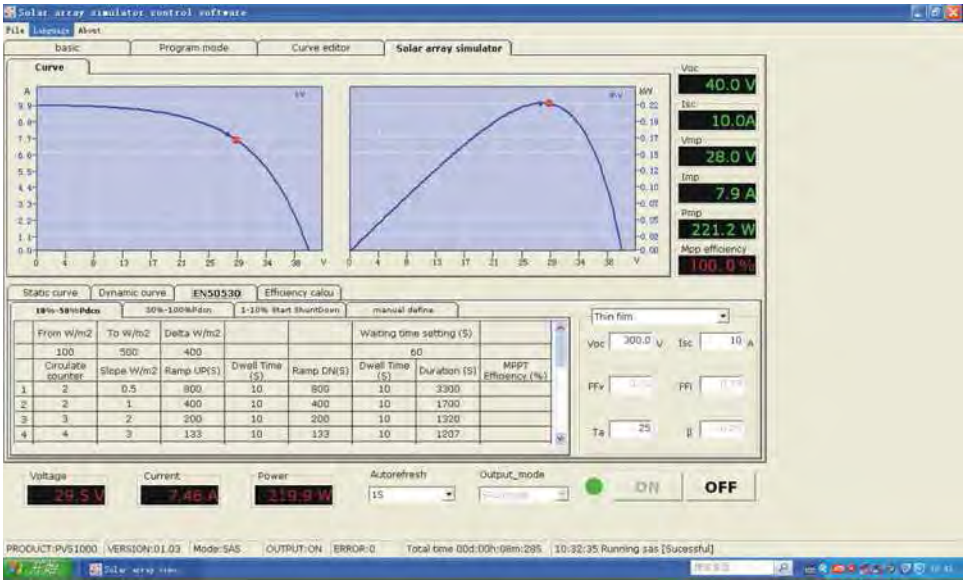
Product Features

Pure Sine Wave Output	High performance Maximum Power Point Tracking (MPPT)	Power Automatically Locked(APL)	Reverse power transmission
High-Frequency High Conversion Rate	Anti-Islanding Protect	Input /output is fully isolated to protect the electrical safety	Multiple parallel stacking
Power Line Communications	IP67 WaterProof	Intelligent Monitoring Systems	Smaller Size & Lighter Weight
The Leading Patent Technology	Flexible Installation	Simplify maintenance (user serviceable)	Installation and maintenance costs low

High Efficiency & Best Cost-Effectiveness



Intelligent MPPT & Weak Light Tracking Algorithm

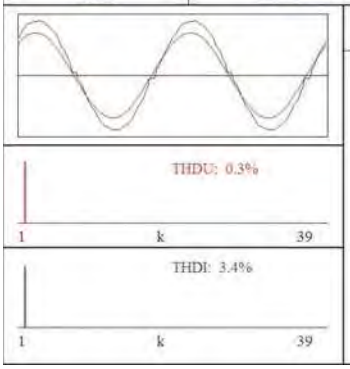


greenenergy latin america

Met The Grid Products Certification Standard

UI2010 Measure Report

Urms (V)	Irms (A)	P (W)	PF	Freq (Hz)
224.8	0.303	67.7	0.994	50.00



spectrum k	voltage %	current %	spectrum k	voltage %	current %
0	0.0	0.0	1	100.0	100.0
2	0.0	0.2	3	0.2	1.1
4	0.0	0.1	5	0.1	1.5
6	0.0	0.0	7	0.0	0.9
8	0.0	0.1	9	0.0	1.0
10	0.0	0.1	11	0.0	0.8
12	0.0	0.1	13	0.0	0.9
14	0.0	0.0	15	0.1	1.2
16	0.0	0.0	17	0.0	1.0
18	0.0	0.0	19	0.0	0.7
20	0.0	0.0	21	0.0	0.4
22	0.0	0.0	23	0.0	0.5
24	0.0	0.0	25	0.1	0.7
26	0.0	0.0	27	0.0	0.7
28	0.0	0.0	29	0.0	0.4
30	0.0	0.0	31	0.0	0.3
32	0.0	0.0	33	0.1	0.1
34	0.0	0.0	35	0.0	0.1
36	0.0	0.1	37	0.0	0.2
38	0.0	0.0	39	0.0	0.3

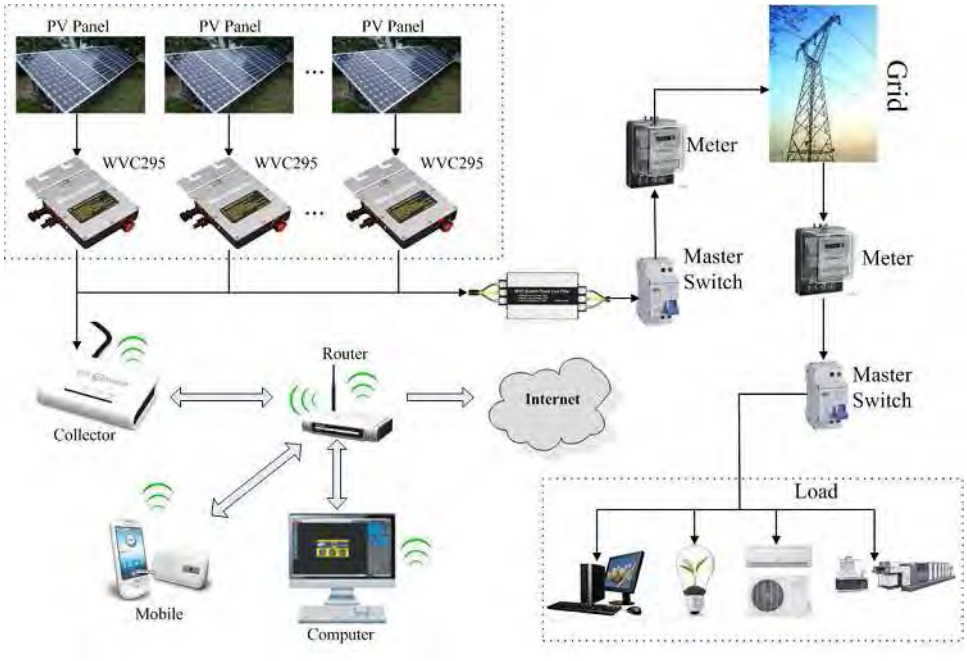
Product Parameters/Details

Input Data	**GELA-WVC295-120VAC/230VAC**
Recommended input power	200-300Watt
Recommend the use of PV modules	300W/Vmp>34V/Voc<50V
Maximum input DC voltage	50V
Peak power tracking voltage	25-40V
Operating Voltage Range	17-50V
Min / Max start voltage	22-50V
Maximum DC short current	15A
Maximum Input Current	9.8A

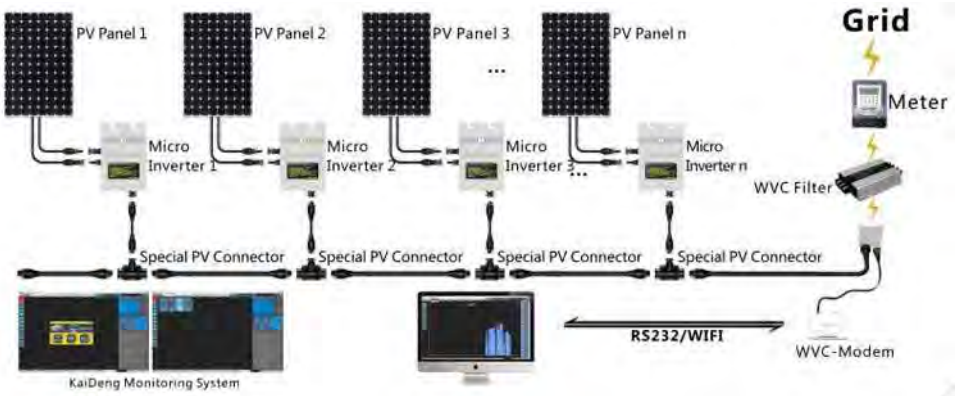
Output Data	**@120VAC**	**@230VAC**
Peak power output	260Watt	260Watt
Rated output power	250Watt	250Watt
Rated output current	2.08A	0.92A
Rated voltage range	80-160VAC	180-260VAC
Rated frequency range	57-62.5Hz	47-52.5Hz
Power factor	>96%	>96%
Maximum units per branch circuit	15PCS(Single-phase)	30PCS(Single-phase)
Output Efficiency	**@120VAC**	**@230VAC**
Static MPPT efficiency	99.5%	99.5%
Maximum output efficiency	94.6%	94.6%
Night time power consumption	<50mW Max	<70mW Max
THDI	<5%	<5%

Exterior	
Ambient temperature	-40°C to +60°C
Operating temperature range (inverter inside)	-40°C to +82°C
Dimensions (WxHxD)	195mm*130mm*32mm
Weight	0.65kg
Waterproof Rating	IP67
Cooling	Self-cooling
Feature	
Communication Mode	Power Line
Power transmission mode	Reverse transfer, load priority
Monitoring System	Lifetime free
Electromagnetic compatibility	EN50081.part1EN50082.part1
Grid disturbance	EN61000-3-2 Safety EN62109
Grid detection	DIN VDE 1026 UL1741
Certificate	CEC,CE National patent technology

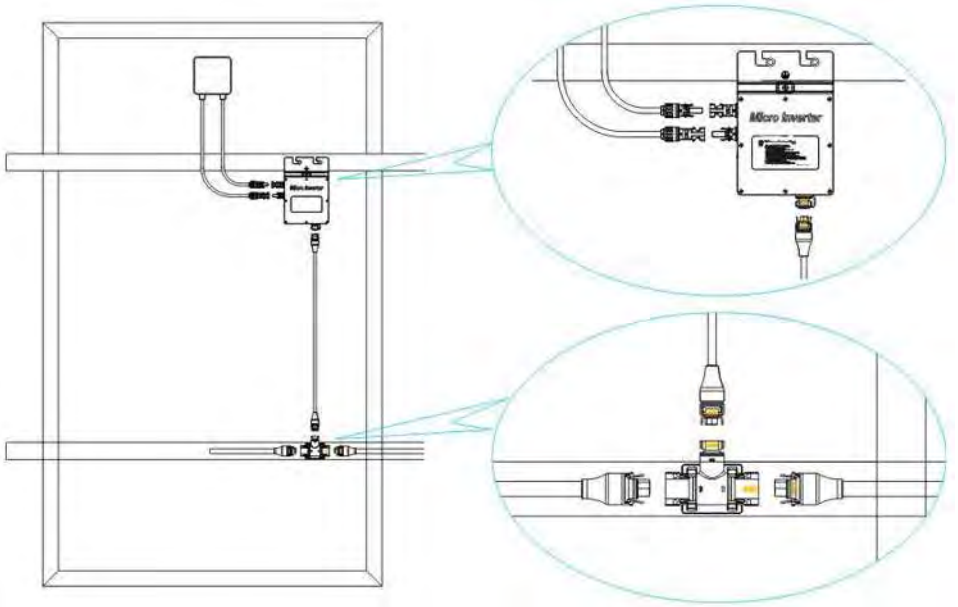
System Block Diagram & Application



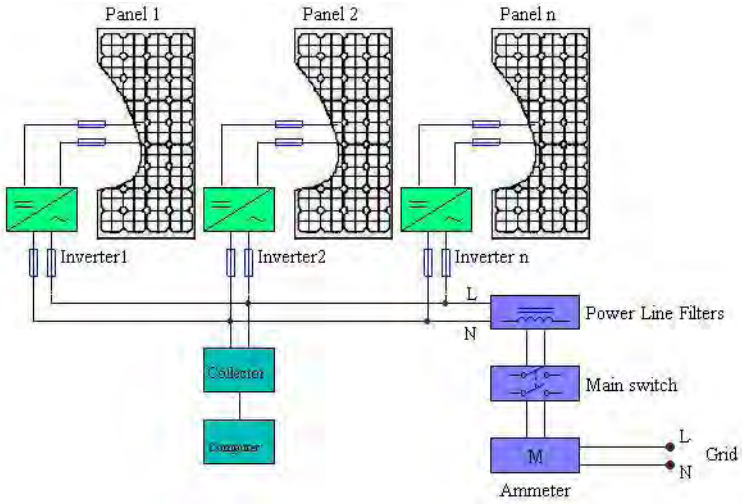
In order to achieve higher power, we can use this inverter in stack. For example: 10 pcs of 260W grid tie inverter used in stack can achieve 2600W. And the stacking number is unlimited.



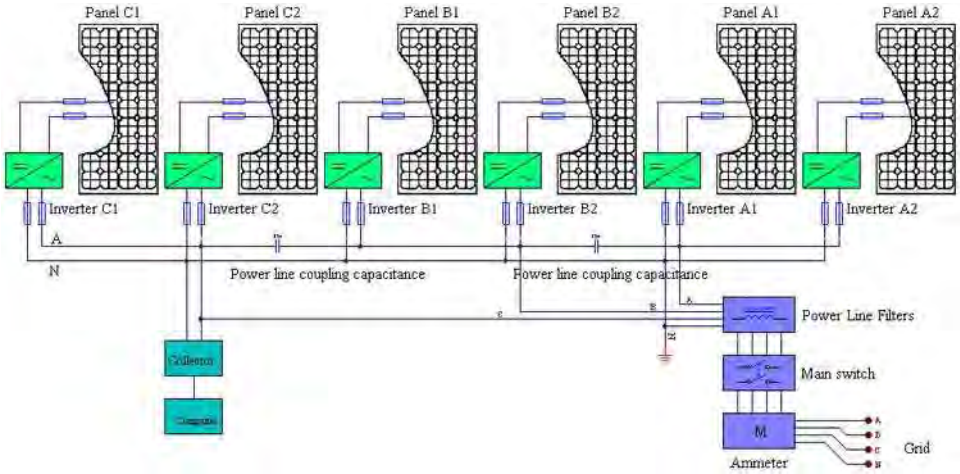
Easy Installation



Single-Phase & Three-Phase Electrical Schematics



Single-Phase



Three-Phase

Notes

- Please install the inverters according to the user manual and connnet the groud safety.
- Forbid openning the shell with non-professional person ,only qualified maintenance person can repair the product .
- The inverter should be installed in the low humidity and well ventilated place,and remove the flammable things surrounding the inverter for avoiding overheating .
- Avoid children play when the inverter is working.
- Ensure the DC input and AC output when connect with PV.
- The Vmp and Voc of PV should be fuit for the prodcut for get output max.

Why Is The Micro Inverter

1. The transition from a centralized to a distributed inverter optimizes energy collection.
2. The converter module integrated into the solar panels can reduce installation costs.
3. Soft switch technology to replace hard-switching technology can improve efficiency and reduce heat dissipation.
4. From cottage industry to mass production, standardized design (hardware and software) to improve reliability and reduce costs.
5. Using a special capacitor (due to the high failure rate). Design requires a higher voltage to reduce the current, we use a special electrolytic capacitors.
6. The converter can be connected to the grid to eliminate the need for many battery applications. The high price of batteries, require maintenance, life expectancy is shorter.
7. Work required micro-inverter power increasingly smaller (only a few hundred watts), which can reduce the internal temperature and improve reliability.
8. Micro-inverter solar inverter system needs to deal with a lot of a particular power level, in order to increase production, thereby reducing costs.

Any Question,Please Feel Free To Contact Us.

GELA WVC series

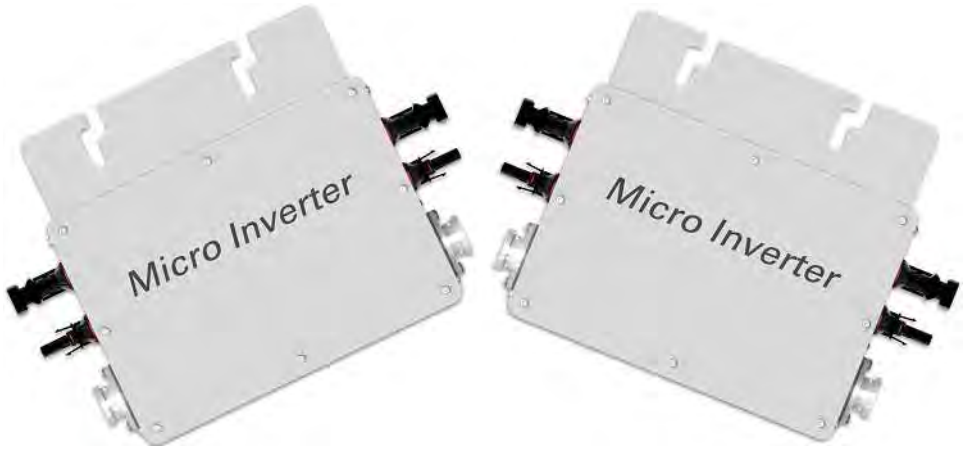
GELA-WVC600

- DC input voltage range：22-50VDC
- AC output voltage range：80-160VAC/180-260VAC
- AC output power ：600Wp
- AC frequency range：50Hz/60Hz
- G.W.：2.85kg
- Size：289mm*200mm*38mm

Enquiry

Description

GELA-WVC600 Series Micro Inverter



Output Power:600W;For Home Station,*MW Station,Low Cost,Easy Intallation,For Monocrystalline Silicon & Polycrystalline Silicon

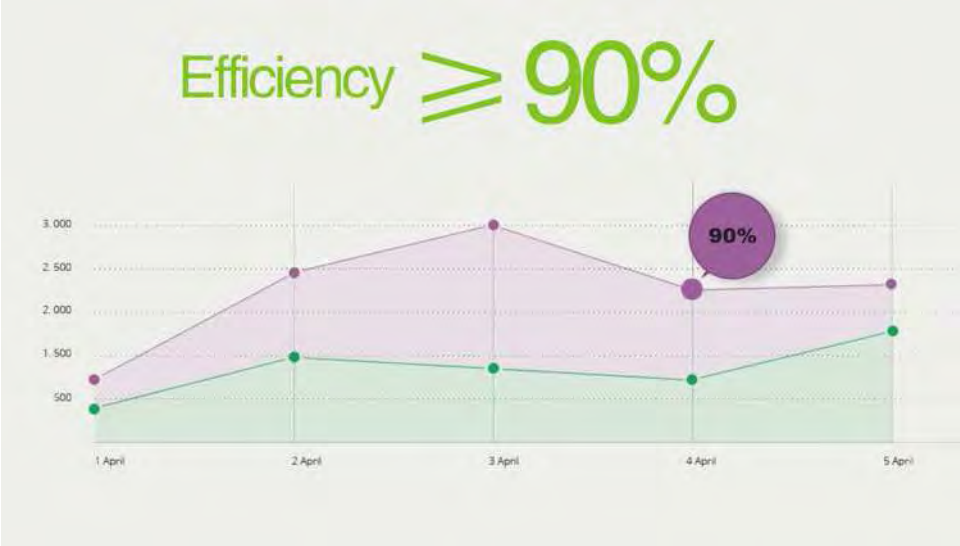
Product Description

GELA-WVC600 Series Using IP65 waterproof streamline design, Can effectively prevent rainwater on the surface erosion, Built-in high-performance Maximum Power Point Tracking(MPPT)Function,Better able to track changes in the solar luminosity and control different output power, Effectively capture and collect sunlight. AC electric power transmission using the reverse transmission technology, Is one of our patented technology, The inverter output power can provide load priority use, Extra electricity to the grid, Efficient use of the inverter to the power emitted, Electricity transmission rate of up to 99%.

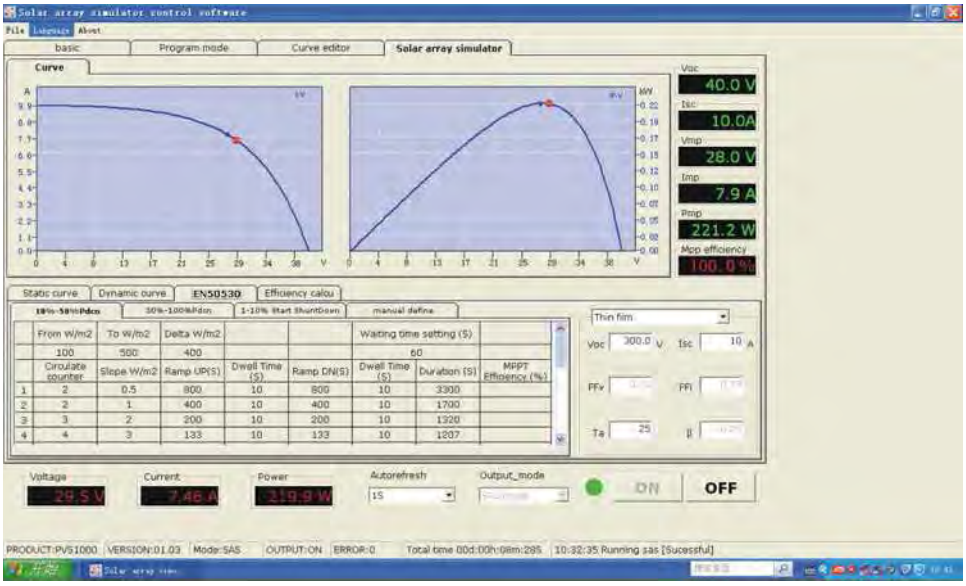
Product Features

Pure Sine Wave Output	High performance Maximum Power Point Tracking (MPPT)	Power Automatically Locked(APL)	Reverse power transmission
High-Frequency High Conversion Rate	Anti-Islanding Protect	Input /output is fully isolated to protect the electrical safety	Multiple parallel stacking
Power Line Communications	IP65 WaterProof	Intelligent Monitoring Systems	Smaller Size & Lighter Weight
The Leading Patent Technology	Flexible Installation	Simplify maintenance (user serviceable)	Installation and maintenance costs low

High Efficiency & Best Cost-Effectiveness



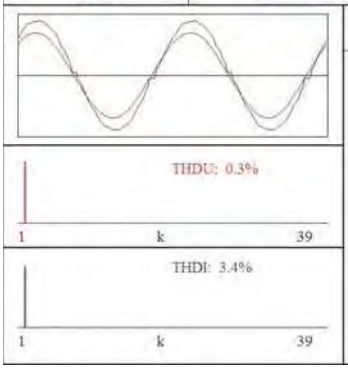
Intelligent MPPT & Weak Light Tracking Algorithm



Met The Grid Products Certification Standard

UI2010 Measure Report

Urms (V)	Irms (A)	P (W)	PF	Freq (Hz)
224.8	0.303	67.7	0.994	50.00



spectrum k	voltage %	current %	spectrum k	voltage %	current %
0	0.0	0.0	1	100.0	100.0
2	0.0	0.2	3	0.2	1.1
4	0.0	0.1	5	0.1	1.5
6	0.0	0.0	7	0.0	0.9
8	0.0	0.1	9	0.0	1.0
10	0.0	0.1	11	0.0	0.8
12	0.0	0.1	13	0.0	0.9
14	0.0	0.0	15	0.1	1.2
16	0.0	0.0	17	0.0	1.0
18	0.0	0.0	19	0.0	0.7
20	0.0	0.0	21	0.0	0.4
22	0.0	0.0	23	0.0	0.5
24	0.0	0.0	25	0.1	0.7
26	0.0	0.0	27	0.0	0.7
28	0.0	0.0	29	0.0	0.4
30	0.0	0.0	31	0.0	0.3
32	0.0	0.0	33	0.1	0.1
34	0.0	0.0	35	0.0	0.1
36	0.0	0.1	37	0.0	0.2
38	0.0	0.0	39	0.0	0.3

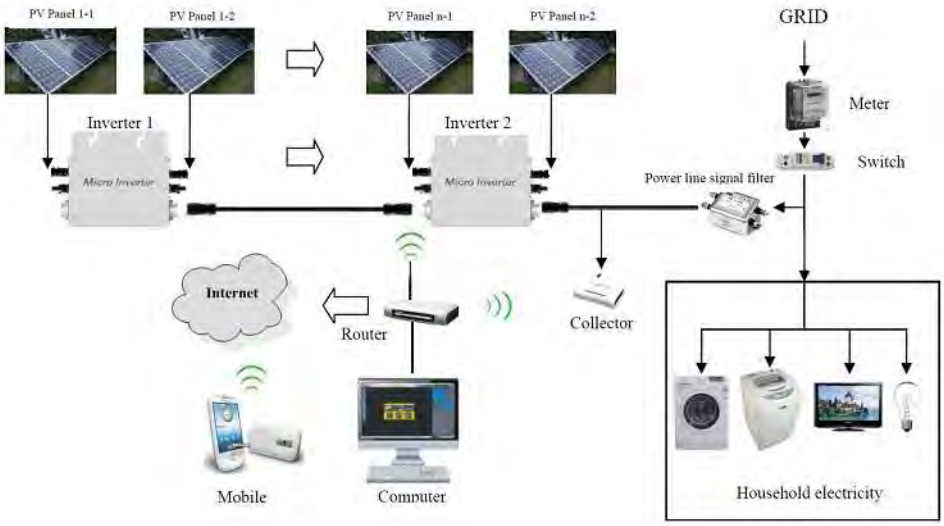
Product Parameters/Details

Input Data	**GELA-WVC600-120VAC/230VAC**
Recommended input power	600Watt
Recommend the use of PV modules	600W/Vmp>34V/Voc<50V
Maximum input DC voltage	50V
Peak power tracking voltage	22-45V
Operating Voltage Range	17-50V
Min / Max start voltage	22-50V
Maximum DC short current	40A
Maximum Input Current	25A

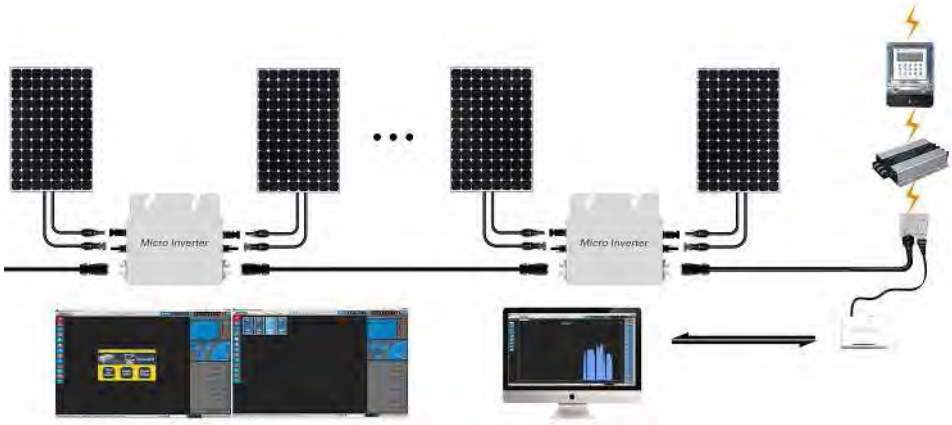
Output Data	**@120VAC**	**@230VAC**
Peak power output	600Watt	600Watt
Rated output power	550Watt	550Watt
Rated output current	4.58A	2.3A
Rated voltage range	80-160VAC	180-260VAC
Rated frequency range	57-62.5Hz	47-52.5Hz
Power factor	>98%	>98%
Maximum units per branch circuit	6PCS(Single-phase)	12PCS(Single-phase)
Output Efficiency	**@120VAC**	**@230VAC**
Static MPPT efficiency	99.5%	99.5%
Maximum output efficiency	90%	90%
The average efficiency	88%	88%
Night time power consumption	<50mW Max	<70mW Max
THDI	<5%	<5%

Exterior	
Ambient temperature	-40°C to +60°C
Operating temperature range (inverter inside)	-40°C to +82°C
Dimensions (WxHxD)	289mm*200mm*38mm
Weight	1.53kg
Waterproof Rating	IP65
Cooling	Self-cooling
Feature	
Communication Mode	Power Line
Power transmission mode	Reverse transfer, load priority
Monitoring System	Lifetime free
Electromagnetic compatibility	EN50081.part1EN50082.part1
Grid disturbance	EN61000-3-2 Safety EN62109
Grid detection	DIN VDE 1026 UL1741
Certificate	CEC,CE National patent technology

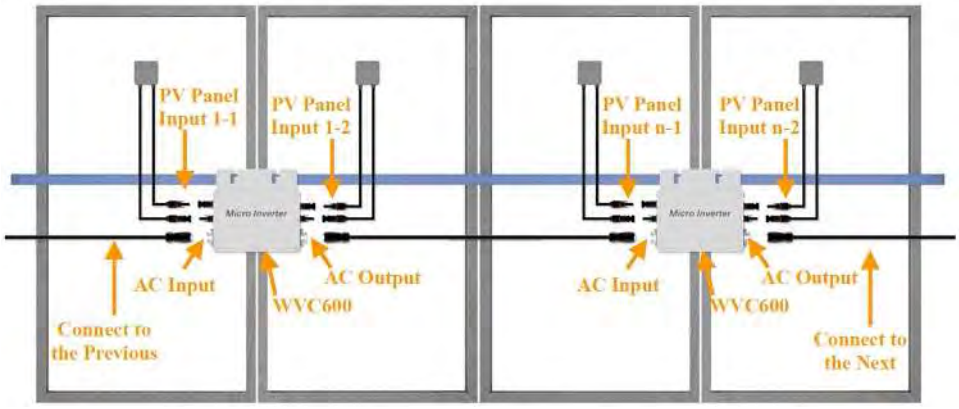
System Block Diagram & Application



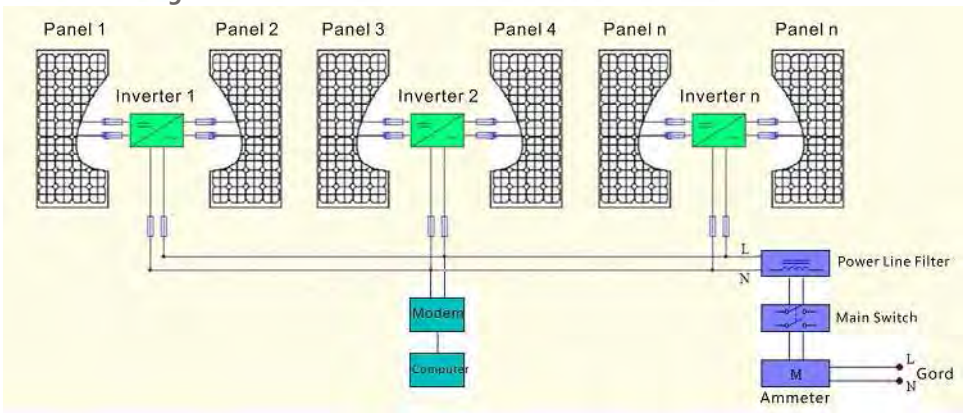
In order to achieve higher power, we can use this inverter in stack. For example: 10 pcs of WVC600 grid tie inverter used in stack can achieve 6000W. And the stacking number is unlimited.



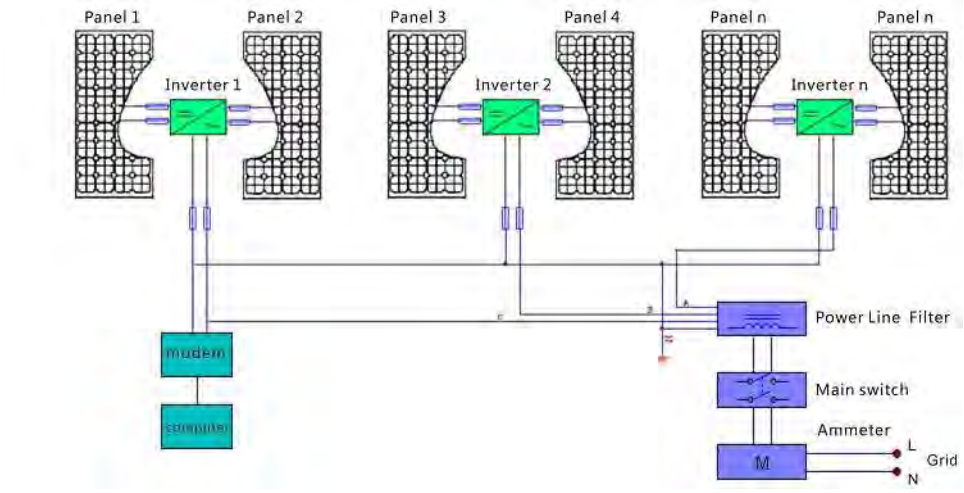
Easy Installation



Single-Phase & Three-Phase Electrical Schematics



Single-Phase



Three-Phase

Notes

- Please install the inverters according to the user manual and connnet the groud safety.
- Forbid openning the shell with non-professional person ,only qualified maintenance person can repair the product .
- The inverter should be installed in the low humidity and well ventilated place,and remove the flammable things surrounding the inverter for avoiding overheating .
- Avoid children play when the inverter is working.
- Ensure the DC input and AC output when connect with PV.
- The Vmp and Voc of PV should be fuit for the prodcut for get output max.

Why Is The Micro Inverter

1. The transition from a centralized to a distributed inverter optimizes energy collection.
2. The converter module integrated into the solar panels can reduce installation costs.
3. Soft switch technology to replace hard-switching technology can improve efficiency and reduce heat dissipation.
4. From cottage industry to mass production, standardized design (hardware and software) to improve reliability and reduce costs.
5. Using a special capacitor (due to the high failure rate). Design requires a higher voltage to reduce the current, we use a special electrolytic capacitors.
6. The converter can be connected to the grid to eliminate the need for many battery applications. The high price of batteries, require maintenance, life expectancy is shorter.

GELA WVC series

GELA KD-WVC1200

- DC input voltage range：22-50VDC
- AC output voltage range：80-160VAC/180-260VAC
- AC output power ：1200Wp
- AC frequency range：50Hz/60Hz
- G.W.：4.2KG
- Size：370MM*305MM*38MM

Enquiry

Description

GELA KD-WVC1200 Series Micro Inverter

Output Power:1200W;For Home Station,*MW Station,Low Cost,Easy Intallation,For Monocrystalline Silicon & Polycrystalline Silicon

Product Description

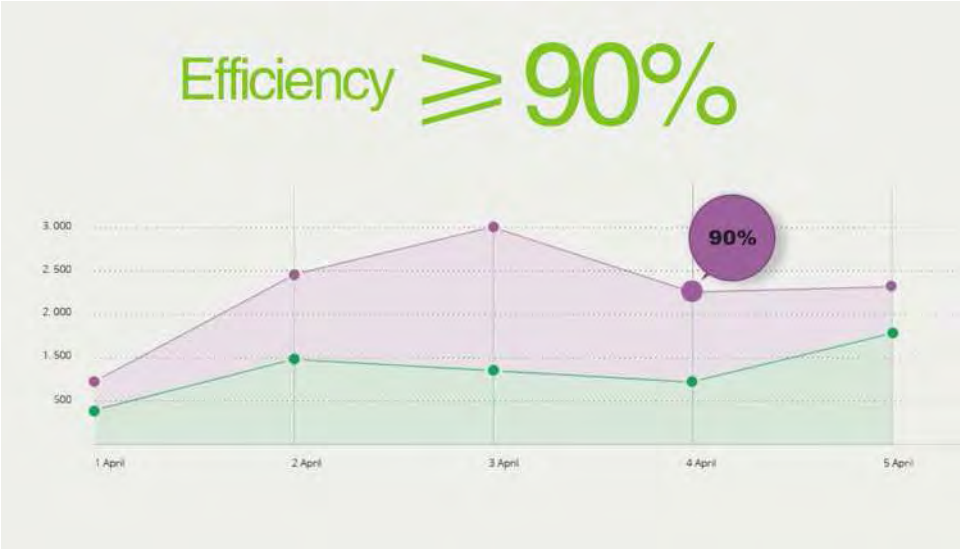
GELA KD-WVC1200 Series Using IP65 waterproof streamline design, Can effectively prevent rainwater on the surface erosion, Built-in high-performance Maximum Power Point Tracking(MPPT)Function,Better able to track changes in the solar luminosity and control different output power, Effectively capture and collect

sunlight. AC electric power transmission using the reverse transmission technology, Is one of our patented technology, The inverter output power can provide load priority use, Extra electricity to the grid, Efficient use of the inverter to the power emitted, Electricity transmission rate of up to 99%.

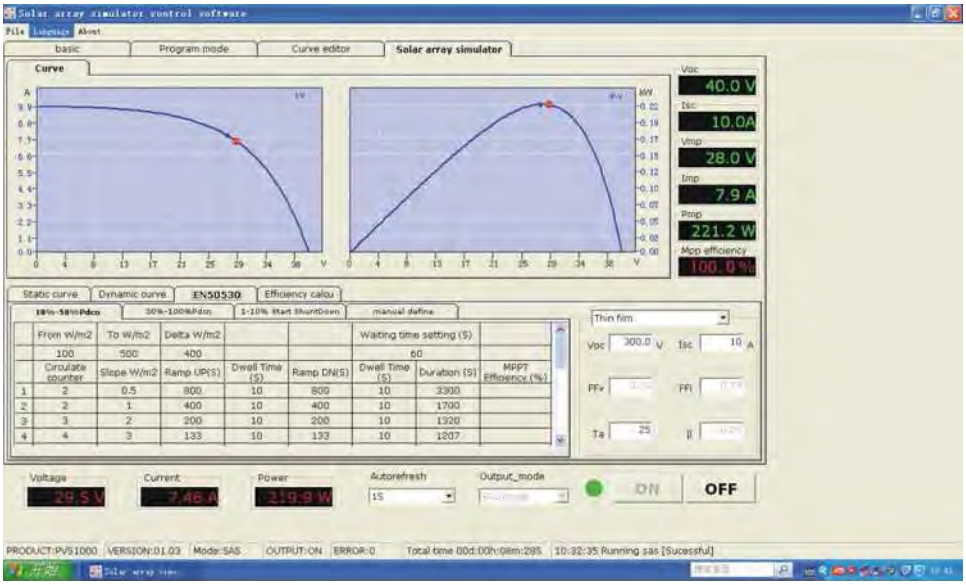
Product Features

Pure Sine Wave Output	High performance Maximum Power Point Tracking (MPPT)	Power Automatically Locked(APL)	Reverse power transmission
High-Frequency High Conversion Rate	Anti-Islanding Protect	Input /output is fully isolated to protect the electrical safety	Multiple parallel stacking
Power Line Communications	IP65 WaterProof	Intelligent Monitoring Systems	Smaller Size & Lighter Weight
The Leading Patent Technology	Flexible Installation	Simplify maintenance (user serviceable)	Installation and maintenance costs low

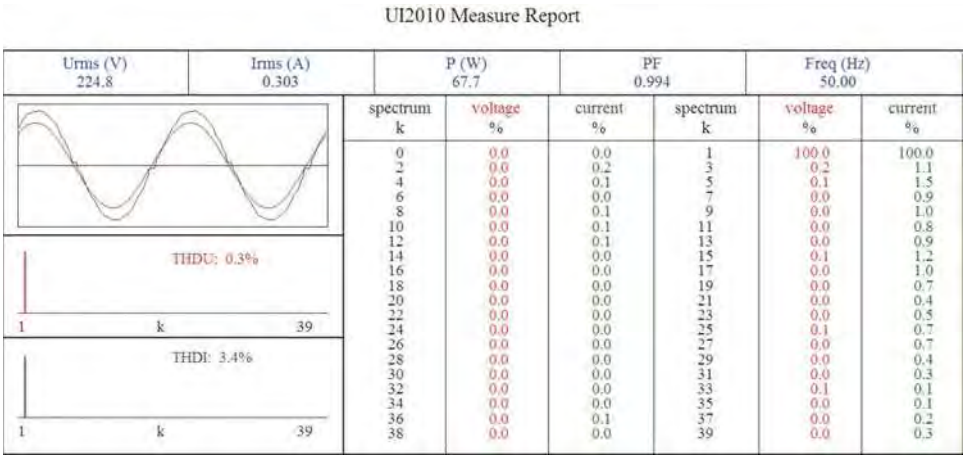
High Efficiency & Best Cost-Effectiveness



Intelligent MPPT & Weak Light Tracking Algorithm



Met The Grid Products Certification Standard



spectrum k	voltage %	current %	spectrum k	voltage %	current %
0	0.0	0.0	1	100.0	100.0
2	0.0	0.2	3	0.2	1.1
4	0.0	0.1	5	0.1	1.5
6	0.0	0.0	7	0.0	0.9
8	0.0	0.1	9	0.0	1.0
10	0.0	0.1	11	0.0	0.8
12	0.0	0.1	13	0.0	0.9
14	0.0	0.0	15	0.1	1.2
16	0.0	0.0	17	0.0	1.0
18	0.0	0.0	19	0.0	0.7
20	0.0	0.0	21	0.0	0.4
22	0.0	0.0	23	0.0	0.5
24	0.0	0.0	25	0.1	0.7
26	0.0	0.0	27	0.0	0.7
28	0.0	0.0	29	0.0	0.4
30	0.0	0.0	31	0.0	0.3
32	0.0	0.0	33	0.1	0.1
34	0.0	0.0	35	0.0	0.1
36	0.0	0.1	37	0.0	0.2
38	0.0	0.0	39	0.0	0.3

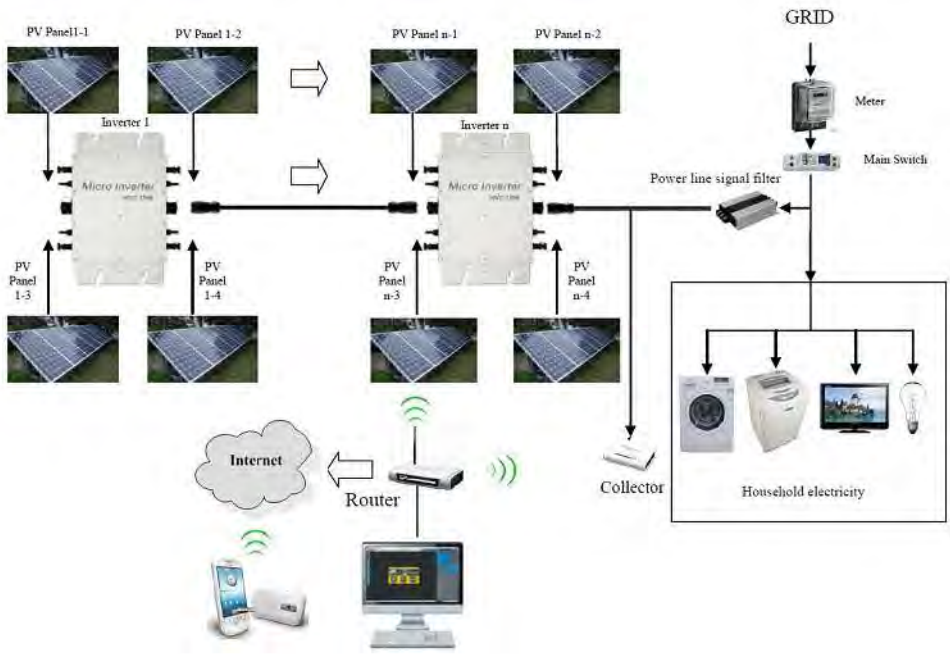
Product Parameters/Details

Input Data	**GELA KD-WVC1200-120VAC/230VAC**
Recommended input power	1200Watt
Recommend the use of PV modules	4*300W/Vmp>34V/Voc<50V
Maximum input DC voltage	50V
Peak power tracking voltage	25-40V
Operating Voltage Range	17-50V
Min / Max start voltage	22-50V
Maximum DC short current	80A
Maximum Input Current	54.4A

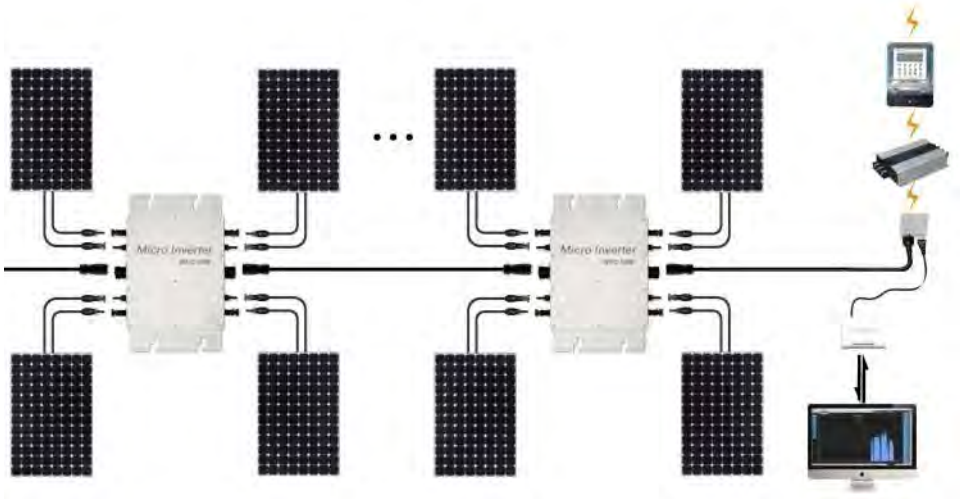
Output Data	**@120VAC**	**@230VAC**
Peak power output	1200Watt	1200Watt
Rated output power	1150Watt	1150Watt
Rated output current	9.58A	5A
Rated voltage range	80-160VAC	180-260VAC
Rated frequency range	57-62.5Hz	47-52.5Hz
Power factor	>98%	>98%
Maximum units per branch circuit	3PCS(Single-phase)	5PCS(Single-phase)
Output Efficiency	**@120VAC**	**@230VAC**
Static MPPT efficiency	99.5%	99.5%
Maximum output efficiency	92%	92%
Night time power consumption	<50mW Max	<70mW Max

THDI	<5%	<5%
Exterior		
Ambient temperature	-40°C to +60°C	
Operating temperature range (inverter inside)	-40°C to +82°C	
Dimensions (WxHxD)	370mm*305mm*38mm	
Weight	2.85kg	
Waterproof Rating	IP65	
Cooling	Self-cooling	
Feature		
Communication Mode	Power Line	
Power transmission mode	Reverse transfer, load priority	
Monitoring System	Lifetime free	
Electromagnetic compatibility	EN50081.part1EN50082.part1	
Grid disturbance	EN61000-3-2 Safety EN62109	
Grid detection	DIN VDE 1026 UL1741	
Certificate	CEC,CE National patent technology	

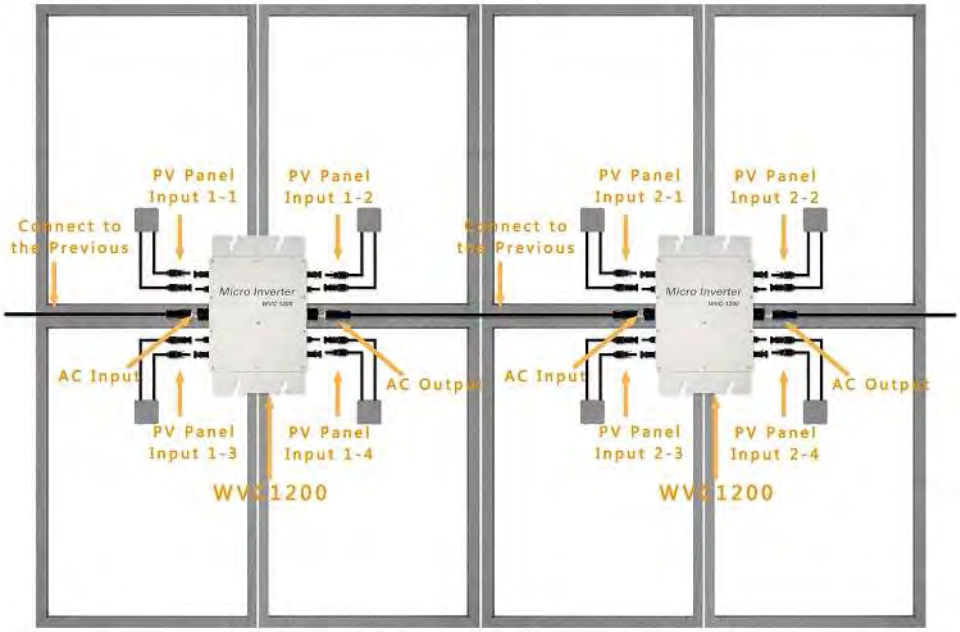
System Block Diagram & Application



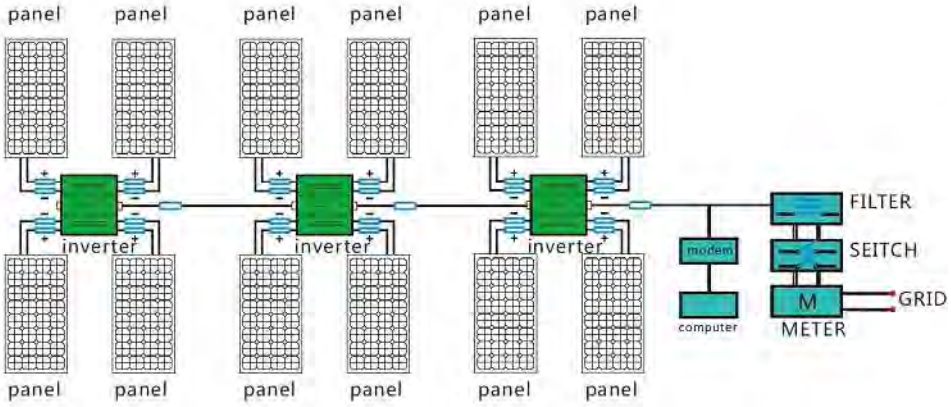
In order to achieve higher power, we can use this inverter in stack. For example: 10 pcs of WVC1200 grid tie inverter used in stack can achieve 12000W. And the stacking number is unlimited.



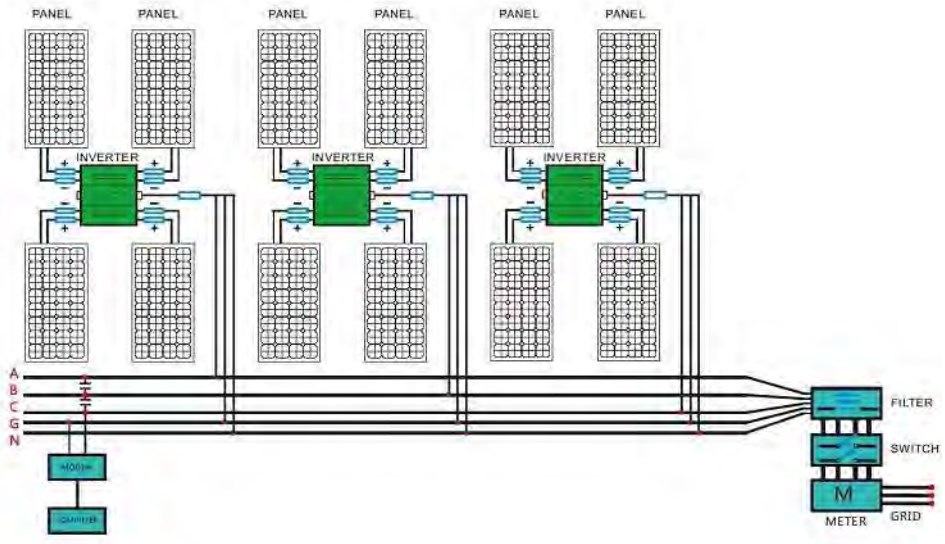
Easy Installation



Single-Phase & Three-Phase Electrical Schematics



Single-Phase



Three-Phase

Notes

- Please install the inverters according to the user manual and connnet the groud safety.
- Forbid openning the shell with non-professional person ,only qualified maintenance person can repair the product .
- The inverter should be installed in the low humidity and well ventilated place,and remove the flammable things surrounding the inverter for avoiding overheating .
- Avoid children play when the inverter is working.
- Ensure the DC input and AC output when connect with PV.
- The Vmp and Voc of PV should be fuit for the prodcut for get output max.

Why Is The Micro Inverter

1. The transition from a centralized to a distributed inverter optimizes energy collection.
2. The converter module integrated into the solar panels can reduce installation costs.
3. Soft switch technology to replace hard-switching technology can improve efficiency and reduce heat dissipation.
4. From cottage industry to mass production, standardized design (hardware and software) to improve reliability and reduce costs.

5. Using a special capacitor (due to the high failure rate). Design requires a higher voltage to reduce the current, we use a special electrolytic capacitors.

6. The converter can be connected to the grid to eliminate the need for many battery applications. The high price of batteries, require maintenance, life expectancy is shorter.

7. Work required micro-inverter power increasingly smaller (only a few hundred watts), which can reduce the internal temperature and improve reliability.

8. Micro-inverter solar inverter system needs to deal with a lot of a particular power level, in order to increase production, thereby reducing costs.

Solar inverters

ABB string inverters
UNO-2.0/2.5-I-OUTD
2.0kW to 2.5kW

ABB's UNO 2.0 and 2.5 inverters have a lightweight design that enables inverter mounting flexibility for residential applications

These isolated inverters are simple to wall mount and are extremely lightweight.
They feature the flexibility and innovation ABB is known for.
These inverters are fully integrated with a DC disconnect and wiring box that saves installation time and cost.
The high-speed MPPT offers real-time power tracking and improved energy harvesting.

These inverters provide a flexible system with high levels of performance and reliability that designers need.
The high-speed and precise Multiple Power Point Tracking (MPPT) algorithm and industry-leading MPPT enable real-time power tracking and improved energy harvesting.
The wide input voltage range makes the inverter suitable for low power installations with a reduced string size.

Highlights:
- This inverter operates at 96% CEC weighted efficiency.
- It has a single phase and split phase output.
- It operates with extra quiet high-frequency transformer inverter architecture.
- The NEMA 4X rated enclosure enables unrestricted use under any environmental conditions.

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Additional highlights:

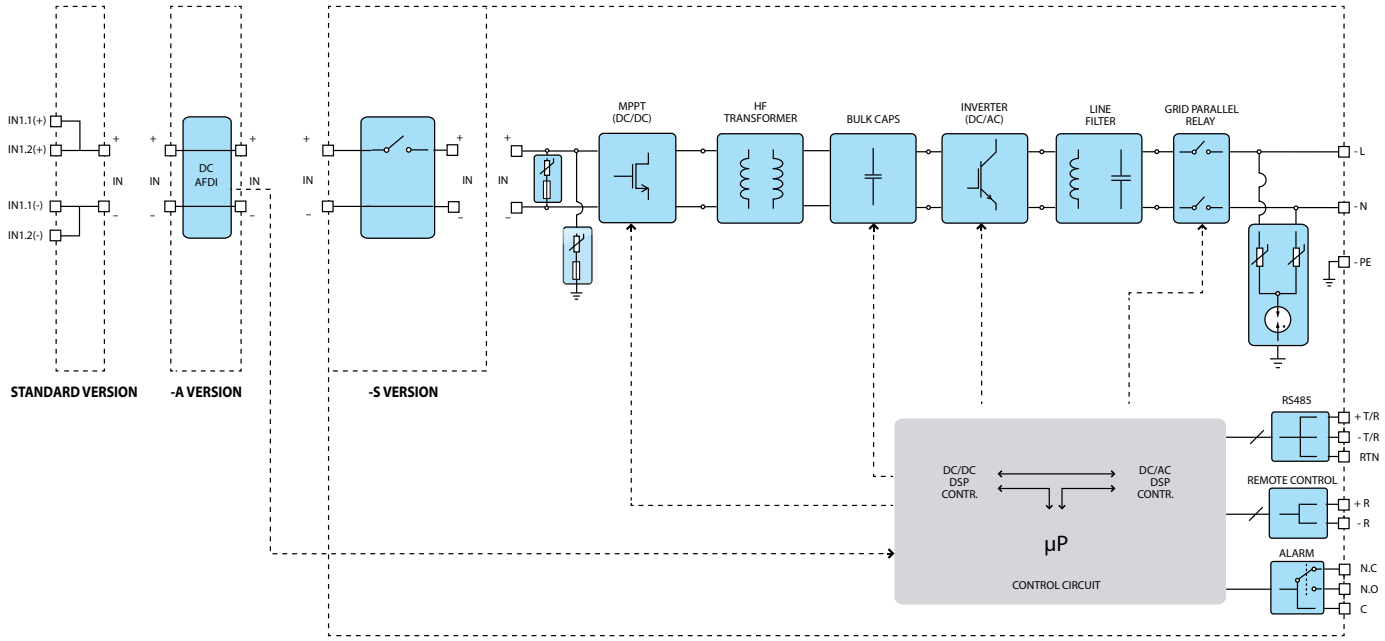
- Flexible data monitoring options allow you to view inverter performance where and how you need it.
- This inverter comes with a standard 10 year warranty, and available extensions to 15 and 20 years.

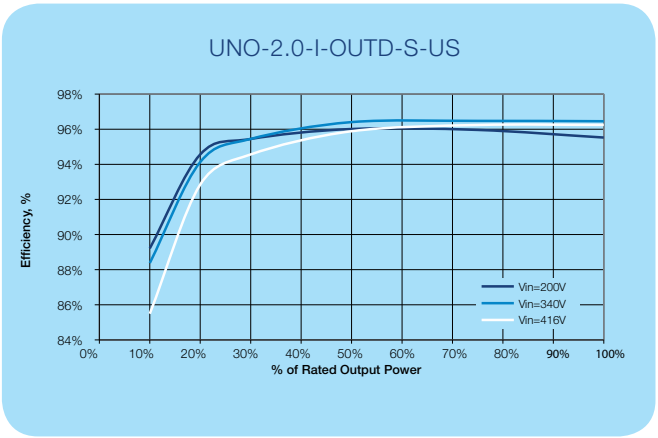
Technical data and types

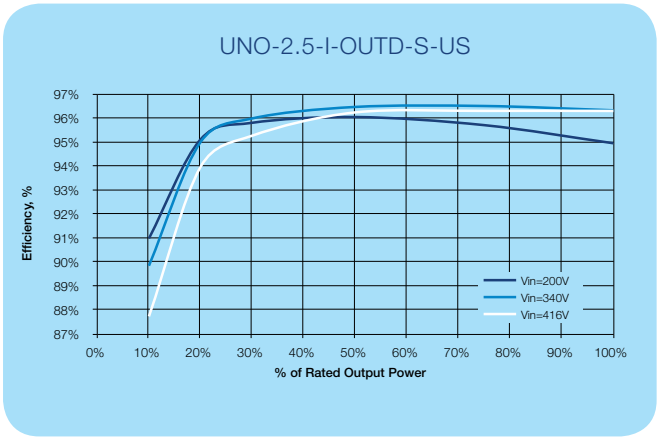
Type code	UNO-2.0-I-OUTD-S-US			UNO-2.5-I-OUTD-S-US		
Nominal output power	2000W			2500W		
Maximum output power	2200W[1]			2750W[1]		
Rated grid AC voltage	208V	240V	277V	208V	240V	277V
Input side (DC)						
Number of independent MPPT channels	1					
Maximum usable power for each channel	2300W					
Absolute maximum voltage (Vmax)	520V					
Start-up voltage (Vstart)	200V (adj. 120-350V)					
Full power MPPT voltage range	170-470V			205-470V		
Operating MPPT voltage range	0.7xVstart-520					
Maximum usable current per channel	12.5A			12.8A		
Maximum short circuit current limit per channel	15A					
Number of wire landing terminals per channel	2 pairs					
Array wiring termination	Terminal block, pressure clamp, 20AWG-6AWG					
Output side (AC)						
Grid connection type	1Ø/2W	Split-Ø/3W	1Ø/2W	1Ø/2W	Split-Ø/3W	1Ø/2W
Adjustable voltage range	183V-228V	211V-264V	244V-304V	183V-228V	211V-264V	244V-304V
Grid frequency	60Hz					
Adjustable grid frequency range	57Hz-60.5Hz					
Maximum current	10A			12A		
Power Factor	>0.990					
Total harmonic distortion (@ rated output power)	<2%					
Grid wiring termination type	Terminal block, pressure clamp AWG20-AWG6					
Input protection devices						
Reverse polarity protection	Yes					
Over-voltage protection type	Varistor, 2					
PV array ground fault detection	Meets UL1741 / NEC 690.5 requirements					
PV array isolation control	GFDI (for use with either positive or negative grounded arrays)					
Output protection devices						
Anti-islanding protection	Meets UL 1741/IEEE 1547 requirements					
Over-Voltage protection type	Varistor, 2 (L_1 - L_2 / L_1 - G)					
Maximum AC OCPD Rating	15A					
Efficiency						
Maximum efficiency	96.6%					
CEC efficiency	95.5%	95.5%	95.5%	95.5%	96%	96%
Operating performance						
Night time consumption	<0.6W_{RMS}					
Stand by consumption	< 8W_{RMS}					
Communication						
User-interface	5.5" x 1.25" graphic display					
Remote monitoring (1xRS485 incl.)	VSN700 Data Logger (opt.)					
Environmental						
Ambient air operating temperature range	-13°F to 140°F (-25°C to +°C) with derating above 122°F (50°C)					
Ambient air storage temperature range	-40°F to 176°F (-40°C to +80°C)					
Relative humidity	0-100% condensing					
Acoustic noise emission level	<50 db (A) @ 1m					
Maximum operating altitude without derating	6560 ft (2000m)					

1. Capability enabled at nominal AC voltage and with sufficient DC power available

Block diagram of UNO 2.0/2.5-TL-OUTD







Technical data and types

Type code	UNO-2.0-I-OUTD-S-US	UNO-2.5-I-OUTD-S-US
Mechanical specifications		
Enclosure rating	NEMA 4X	
Cooling	Natural convection	
Dimensions (H x W x D)	30.3 x 14.4 x 6.3in (769 x 367 x 161mm)	
Weight	<42.5lb (19.3 kg)	
Mounting system	Wall bracket	
Conduit connections[2]	Botton: (2) 3/4“ KO, (3) 1/2“ KO / Left and right side: (1) 3/4“ KO / Back: (4) 3/4“ KO	
DC switch rating (per contact) (A/V)	16A / 6000Vdc	
Safety		
Isolation level	High-frequency transformer	
Safety and EMC standard	UL 1741, IEE1547, IEE1547.1, CSA-C22.2N. 107.1-01, UL1998 UL 1699B, FCC Part 15 Class B	
Safety Approval	$_{c}CSA_{us}$	
Warranty		
Standard warranty	10 years	
Extended warranty	15 & 20 years	
Available models		
Standard	UNO-2.0-I-OUTD-US	UNO-2.5-I-OUTD-US
With DC switch and wiring box	UNO-2.0-I-OUTD-S-US	UNO-2.5-I-OUTD-S-US
With DC switch, wiring box and Arc Fault detector and interruptor	UNO-2.0-OUTD-S-US-A	UNO-2.5-OUTD-S-US-A

2. When equipped with optional DC switch and wiring box

All data is subject to change without notice

Solar inverters

ABB string inverters
PVI-3.0/3.6/3.8/4.2-TL-OUTD
3.0kW to 4.2kW

This family of single-phase string inverters complements the typical number of rooftop solar panels enabling home-owners to get the most efficient energy harvesting for the size of the property.

This inverter offers a dual input section that processes two strings with independent Multiple Power Point Tracking (MPPT).
This is especially useful for rooftop installations with two different orientations from two sub-arrays oriented in different directions. (For example: East and West)
The dual input sections with independent MPPT enable a more optimal energy harvesting condition.

The high-speed MPPT offers real-time power tracking and improved energy harvesting.
The flat efficiency curve ensures high efficiency at all output levels allowing a consistent and stable performance across the entire input voltage and output power range.
The transformerless operation gives the highest efficiency of up to 97.0%.
The wide input voltage range makes the inverter suitable to low power installations with reduced string size.
This rugged outdoor inverter has been designed to be a completely sealed unit able to withstand the harshest environmental conditions.

Highlights:
- Single phase and split phase output grid connection.
- Wide input range for increased stringing flexibility.
- The high speed and precise MPPT algorithm offers real time power tracking and improved energy harvesting.
- Outdoor NEMA 4X rated enclosure for unrestricted use under any environmental conditions.
- Integrated DC disconnect switch in compliance with international Standards (-S Version).

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Additional highlights:

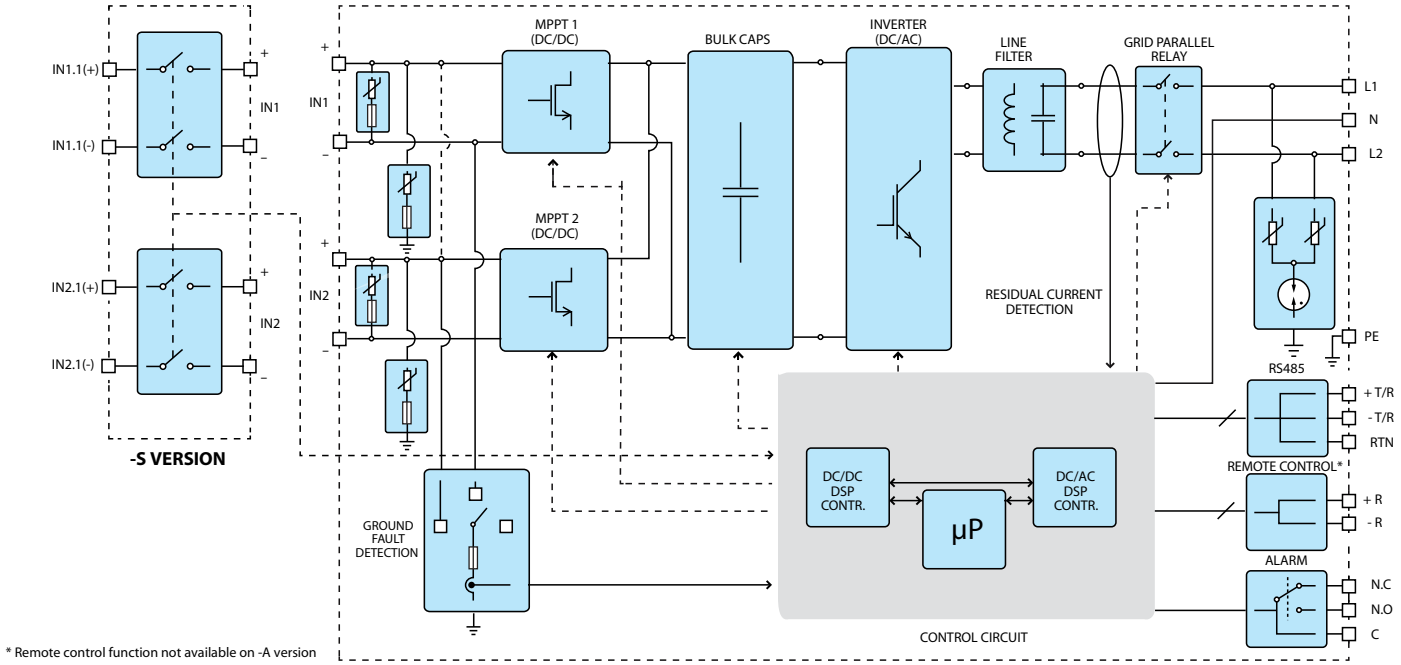
- RS-485 communication interface (for connection to laptop or data logger).
- Integrated Arc Fault Detection and Interruption (-A Version).

Technical data and types

Type code	PVI-3.0-OUTD-US			PVI-3.6-OUTD-US			PVI-3.8-OUTD-US			PVI-4.2-OUTD-US		
Mechanical specifications												
Nominal output power	3000W			3600W			3300 W	3800W		4200W		
Maximum output power wattage	3000 W	3300[1] W	3300[1] W	3600 W	4000[1] W	4000[1] W	3300 W	4200[1] W	4200[1] W	4200 W	4600[1] W	4600[1] W
Rated grid AC voltage	208V	240V	277V	208V	240V	277V	208V	240V	277V	208V	240V	277V
Input side (DC)												
Number of independent MPPT channels	2			2			2			2		
Maximum usable power for each channel	2000W			3000W			3000W			3000W		
Absolute maximum voltage (Vmax)	600V											
Start-up voltage (Vstart)	200V (adj. 120-350V)											
Full power MPPT voltage range	160-530V			120-530V			140-530V			140-530V		
Operating MPPT voltage range	0.7 x Vstart - 580V (>=90V)											
Maximum current (Idcmax) for both MPPT in parallel	20A			32A			32A			32A		
Maximum usable current per channel	10A			16A			16A			16A		
Maximum short circuit current limit per channel	12.5A			20.0A			20.0A			20.0A		
Number of wire landing terminals per channel	2 pairs											
Array wiring termination	Terminal block, pressure clamp, AWG10-AWG4											
Output side (AC)												
Grid connection type	1Ø/ 2W	Split-Ø/3W	1Ø/ 2W	1Ø/ 2W	Split-Ø/3W	1Ø/ 2W	1Ø/ 2W	Split-Ø/3W	1Ø/ 2W	1Ø/ 2W	Split-Ø/3W	1Ø/ 2W
Adjustable voltage range (Vmin-Vmax) (V)	183 - 228V	211 - 264V	244- 304V	183- 228V	211- 264V	244- 304V	183- 228V	211- 264V	244- 304V	183- 228V	211- 264V	244- 304V
Grid frequency	60Hz											
Adjustable grid frequency range	57-60.5Hz											
Maximum current ($I_{ac,max}$)	14.5 A_{RMS}	14.5 A_{RMS}	12.0 A_{RMS}	17.2 A_{RMS}	16.0 A_{RMS}	16.0 A_{RMS}	16.0 A_{RMS}	16.0 A_{RMS}	16.0 A_{RMS}	20.0 A_{RMS}	20.0 A_{RMS}	20.0 A_{RMS}
Power factor	> 0.995											
Total harmonic distortion at rated power	< 2%											
Grid wiring termination type	Terminal block, Pressure clamp, AWG10-AWG4											
Input protection devices												
Reverse polarity protection	Yes											
Over-voltage protection type	Varistor, 2 for each channel											
PV array ground fault detection	Pre start-up Riso and Dynamic GFDI (requires floating arrays)											
Output protection devices												
Anti-islanding protection	Meets UL 1741/IEEE1547 requirements											
Over-voltage protection type	Varistor, 2 (L_1 - L_2 / L_1 - G)											
Maximum AC OCPD Rating	20A_{RMS}	20A_{RMS}	15A_{RMS}	25A_{RMS}	20A_{RMS}	20A_{RMS}	20A_{RMS}	20A_{RMS}	20A_{RMS}	25A_{RMS}	25A_{RMS}	25A_{RMS}
Efficiency												
Maximum efficiency	96.9%			97%			97%			97%		
CEC efficiency	96%											
Operating performance												
Night time consumption	< 0.6W_{RMS}											
Stand-by consumption	< 8W_{RMS}											
Communication												
User-interface	16 characters x 2 lines LCD display											
Remote monitoring (1xRS485 incl.)	VSN700 Data Logger (opt.)											
Environmental												
Ambient air operating temperature range	-13°F to +140°F with derating above 122°F (50°C)											
Ambient air storage temperature range	-40°F to +176°F (-40°C to +80°C)											
Relative humidity	0-100% RH condensing											
Acoustic noise emission level	< 50 db (A) @1m											
Maximum operating altitutde without derating	6560 ft (2000 m)											

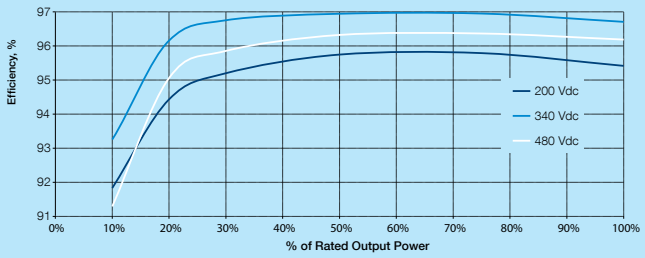
1. Capability enabled at nominal AC voltage and with sufficient DC power available.

Block diagram of PVI-3.0, 3.6, 3.8, 4.2 -TL-OUTD

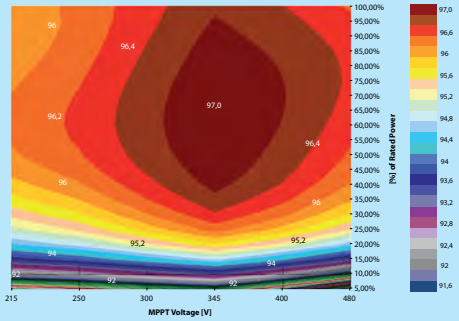


* Remote control function not available on -A version

PVI-4.2-OUTD-US



PVI-4.2-OUTD-US



Technical data and types

Type code	PVI-3.0-OUTD-US	PVI-3.6-OUTD-Us	PVI-3.8-OUTD-US	PVI-4.2-OUTD-US
Mechanical specifications				
Enclosure rating	NEMA 4X			
Cooling	Natural convection			
Dimensions (H x W x D)	33.8 x 12.8 x 8.7in (859 x 325 x 222mm)			
Weight	<47.3lb (21.3kg)			
Shipping weight	< 60lb (27.0kg)			
Mounting system	Wall bracket			
Conduit connections[2]	Trade size KOs (2ea x 1/2") and (2ea x 1-1/4", 3 places side, front, rear) Side: (2) plugged 3/4" openings, (2) Concentric KOs 3/4", 1" Back: (4) Concentric EKOs 3/4", 1"			
DC switch rating (per contact) (A/V)	25/600			
Safety				
Isolation level	Transformerless (floating array)			
Safety and EMC standard	UL 1741, IEE1547, IEE1547.1, CSA-C22.2N. 107.1-01, UL1998 UL 1699B, FCC Part 15 Class B			
Safety Approval	$_{C}CSA_{US}$			
Warranty				
Standard warranty	10 years			
Extended warranty	15 & 20 years			
Available models				
Standard - without DC swtich and wiring box	PVI-3.0-OUTD-US	PVI-3.6-OUTD-US	PVI-3.8-OUTD-US	PVI-4.2-OUTD-US
Standard - with DC switch and wiring box	PVI-3.0-OUTD-S-US	PVI-3.6-OUTD-S-US	PVI-3.8-OUTD-S-US	PVI-4.2-OUTD-S-US
With DC switch, wiring box and arc fault detector and interrupter	PVI-3.0-OUTD-S-US-A	PVI-3.6-OUTD-S-US-A	PVI-3.8-OUTD-S-US-A	PVI-4.2-OUTD-S-US-A

2. When equipped with optional DC switch and wiring box
All data is subject to change without notice

Solar inverters

ABB string inverters
PVI-5000/6000-TL-OUTD
5kW to 6kW

Designed for residential and small commercial PV installations, this inverter fills a specific niche in the ABB product line to cater for those installations producing between 5kW and 20kW.

This inverter includes dual input section to process two strings with independent MPPT.
The high speed and precise MPPT algorithm offers real-time power tracking and energy harvesting.
Flat efficiency curves ensure high efficiency at all output levels ensuring consistent and stable performance across the entire input voltage and output power range.
This outdoor inverter has been designed as a completely sealed unit to withstand the harshest environmental conditions.

The wide input voltage range makes the inverter suitable to low power installations with reduced string size.
The transformerless operation offers high performance efficiencies of up to 97.1%.
Free remote monitoring capability available with every installation. This enables homeowners to view their energy production and offers installers a proactive and economic way of maintaining and troubleshooting the system.

Highlights:

- Single phase and split phase output grid connection.
- Wide input range for increased stringing flexibility.
- The high speed and precise MPPT algorithm offers real time power tracking and improved energy harvesting.
- Outdoor NEMA 4X rated enclosure for unrestricted use under any environmental conditions.
- Integrated DC disconnect switch in compliance with international Standards (-S Version).

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Additional highlights:

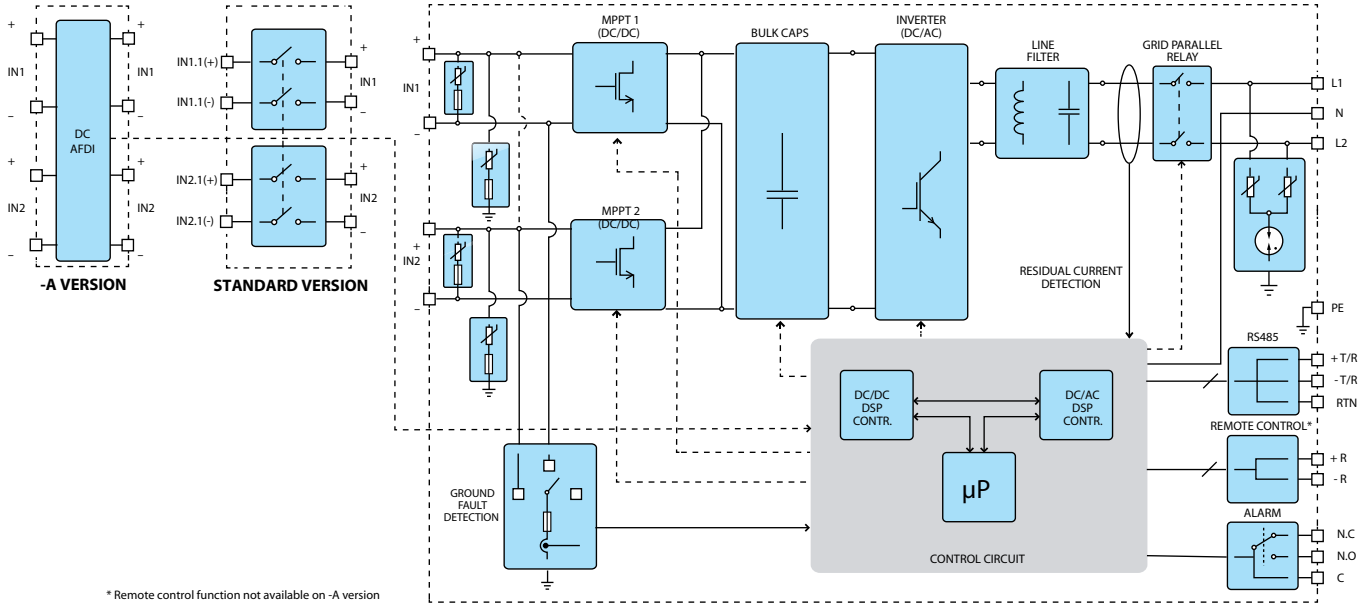
- RS-485 communication interface (for connection to laptop or data logger).
- Integrated Arc Fault Detection and Interruption (-A Version).

Technical data and types

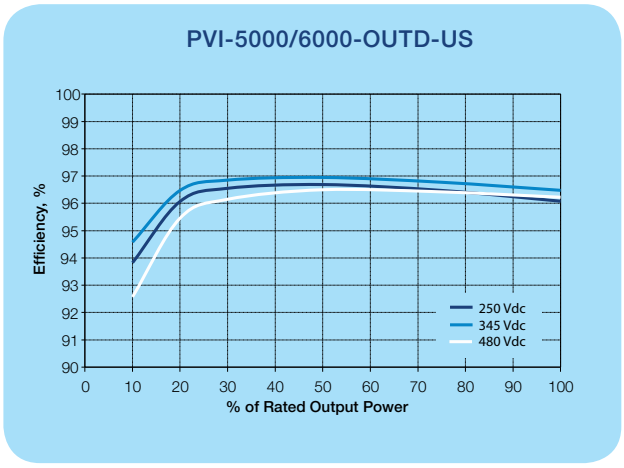
Type code	PVI-5000-OUTD-US			PVI-6000-OUTD-US		
Input side						
Nominal output power	5000W			6000W		
Maximum output power	5000W			6000W		
Rated grid AC voltage	208V	240V	277V	208V	240V	277V
Input side (DC)						
Number of independent MPPT channels	2					
Maximum usable power for each channel	4000W					
Absolute maximum voltage (Vmax)	600V					
Start-up voltage (Vstart)	200V (adj. 120-350)					
Full power MPPT voltage range	200 - 530V					
Operating MPPT voltage range	0.7 x Vstart - 580V					
Maximum current (Idcmax) for both MPPT in parallel	36A					
Maximum usable current per channel	22A					
Number of wire landing terminals per channel	2 Pairs					
Array wiring termination	Terminal block, pressure clamp, AWG16-AWG6					
Output side (AC)						
Grid connection type	1Ø/2W	Split-Ø/3W	1Ø/2W	1Ø/2W	Split-Ø/3W	1Ø/2W
Adjustable voltage range (Vmin-Vmax)	183V-228V	221V-264V	244V-304V	183V-228V	211V-264V	244V-304V
Grid frequency	60Hz					
Adjustable grid frequency range	57-60.5Hz					
Maximum current ($I_{ac,max}$) A_{RMS}	$27A_{RMS}$	$23A_{RMS}$	$20A_{RMS}$	$30A_{RMS}$	$28A_{RMS}$	$24A_{RMS}$
Power factor	> 0.995					
Total harmonic distortion at rated power	< 2%					
Contributory fault current[1]	36.25 A_{pk} / 25.63A_{RMS}	36.5 A_{pk} / 25.81A_{RMS}	31.75 A_{pk} / 22.45A_{RMS}	36.25 A_{pk} / 25.63A_{RMS}	36.5 A_{pk} / 25.81A_{RMS}	31.75 A_{pk} / 22.45A_{RMS}
Grid wiring termination type	Terminal block, pressure clamp, AWG14-AWG4					
Input						
Reverse polarity protection	Yes					
Over-voltage protection type	Varistor, 2 for each channel					
PV array ground fault detection	Pre start-up Riso and Dynamic GFDI (requires floating arrays)					
Output						
Anti-islanding protection	Meets UL 1741/IEEE1547 requirements			Meets UL 1741/IEEE1547 requirements		
Over-voltage protection type	Varistor, 2 (L_1 - L_2 / L_1 - G)			Varistor, 2 (L_1 - L_2 / L_1 - G)		
Maximum AC OCPD Rating	35A	30A	25A	40A	35A	30A
Efficiency						
Maximum efficiency	97.1%					
CEC efficiency	96%	96.5%	96.5%	96%	96.5%	96.5%
User interface	Graphic display			Graphic display		
Operating performance						
Stand-by consumption	$<8W_{RMS}$			$<8W_{RMS}$		
Night time consumption	$<0.6W_{RMS}$			$<0.6W_{RMS}$		
Communication						
User-interface	16 characters x 2 lines LCD display					
Remote monitoring (1xRS485 incl.)	VSN700 Data Logger (opt)					
Wired local monitoring (1xRS485 incl.)	PVI-USB-RS485_232 (opt.)					
Environmental						
Ambient air operating temperature range	-13°F to +140°F (-25°C to +60°C)			-13°F to +140°F (-25°C to +60°C) with derating above 122°F (50°C)		
Ambient air storage temperature range	-40°F to +176°F (-40°C to +80°C)			-40°F to +176°F (-40°C to +80°C)		
Relative humidity	0-100% RH condensing			0-100% RH condensing		
Acoustic noise emission level	< 50 db (A) @1m			< 50 db (A) @1m		
Maximum operating altitutde without derating	6560 ft (2000 m)			6560 ft (2000 m)		

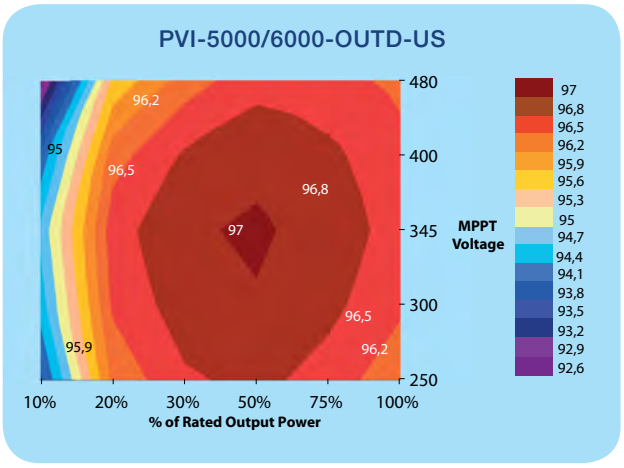
2. Inverter can apply that much current - Breaker will open

Block diagram of PVI-5000/6000-TL-OUTD



* Remote control function not available on -A version





Technical data and types

Type code	PVI-5000-OUTD-US	PVI-6000-OUTD-US
Mechanical specifications		
Enclosure rating	NEMA 4X	
Cooling	Natural convection	
Dimensions (H x W x D)	41.4x12.8x8.6 in (1052 x 325 x218 mm)	
Weight	<59.5lb (27.0 kg)	
Shipping weight	< 78lb (35.4 kg)	
Mounting system	Wall bracket	
Conduit connections	Trade size KOs: (2ea x 1/2") and (2ea x 1-1/4" 3 places side, front, rear)	
DC switch rating (per contact)	25A / 600V	
Safety		
Isolation level	Transformerless (floating array)	
Safety and EMC standard	UL1741, IEE1547, IEE1547.1, CSA-C22.2N. 107.1-01, UL1998 UL 1699B, FCC Part 15 Class B	
Safety Approval	$_{c}CSA_{us}$	
Warranty		
Standard warranty	10 years	
Extended warranty	15 & 20 years	
Available models		
Standard - with DC switch - floating Array	PVI-5000-OUTD-US	PVI-6000-OUTD-US
With DC switch, wiring box and arc fault detector and interruptor	PVI-5000-OUTD-US-A	PVI-6000-OUTD-US-A

*All data is subject to change without notice

Solar inverters

ABB string inverters
PVI-10.0-I-OUTD
10kW

Designed for commercial systems, the PVI-10.0, isolated, three-phase inverter is highly unique in its ability to control the performance of the PV panels, especially during periods of variable weather conditions.

The dual Multiple Power Point Tracker (MPPT) maximizes energy production and increases design flexibility.
This dual independent MPPT functionality enables optimal energy harvesting from two sub-arrays oriented at different azimuths, tilts and varying string lengths. The wide input voltage range makes this inverter suitable for installations with a reduced string size.
The flat efficiency curves offer high efficiency at all output levels ensuring consistent and stable performance across the entire input voltage and output power range.

This inverter is feature rich enabling the desired design flexibility to master any design challenge.
The input voltage range makes this inverter suitable for installations with reduced string size.
The PVI-10.0-I is built to endure harsh environmental conditions with its NEMA 4X rating.
The PVI-10.0-I is available with an optional fully-integrated DC combiner box equipped either with DC or AC and DC disconnect switches and DC fuses.

Highlights:
- This Isolated inverter is available in 208V, 480V and 600V outputs.
- It has an efficiency rating of up to 97.3%.
- The high speed and precise MPPT algorithm enables real-time power tracking and improved energy harvesting.
- The electrolyte-free power converter increases the life expectancy and reliability.

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Additional highlights:

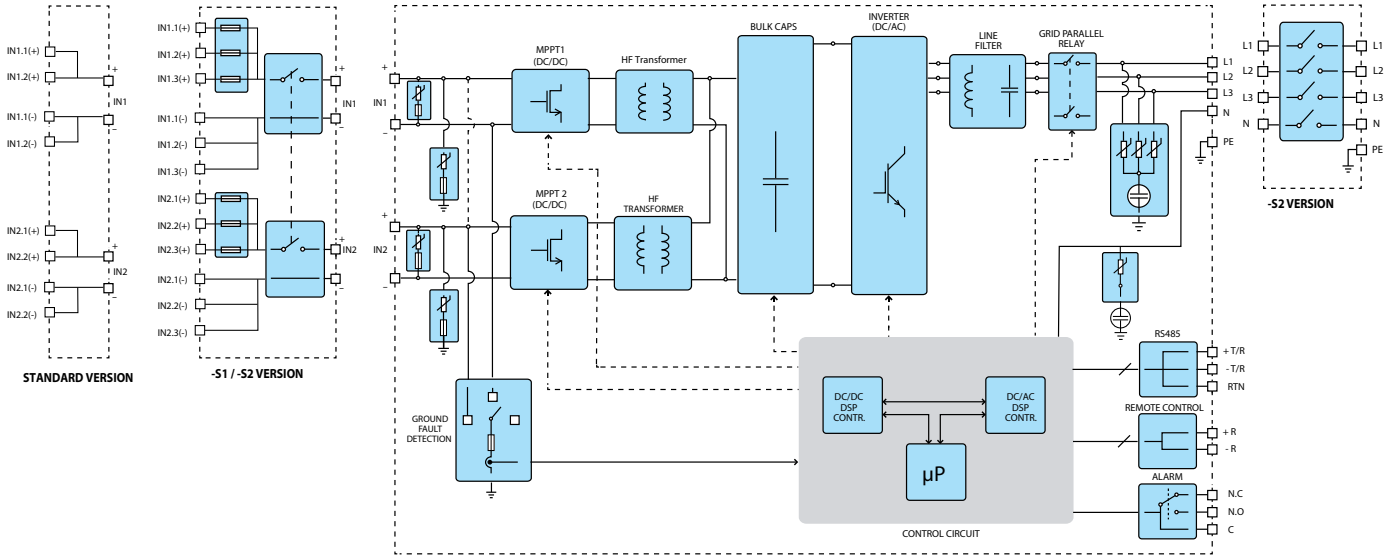
- True three-phase bridge topology for DC/AC output conversion.
- It features a night wake up button to access energy harvesting data and information when inverter is sleeping.
- The dual independent MPPT allows optimal energy harvesting from two sub-arrays oriented in different azimuths and tilts.
- NEMA 4X outdoor enclosure for use under any environmental conditions.
- Integrated combiner box equipped with a DC switch in compliance with international standards (-S1,-S2)
- RS-485 communication interface (for connection to laptop or datalogger).

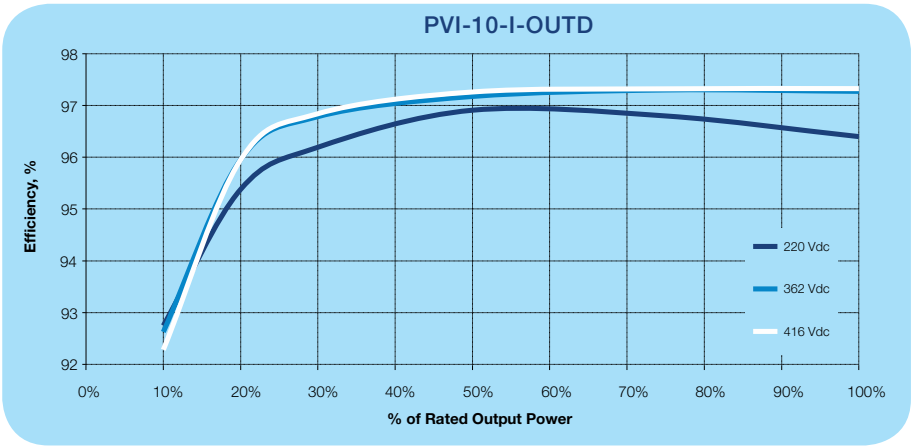
Technical data and types

Type code	PVI-10.0-I-OUTD-US		PVI-10.0-I-OUTD-CAN		
Nominal output power	10000W	10000W	10000W	10000W	10000W
Maximum output power	11000W*	11000W*	10000W*	10000W*	10000W*
Rated grid AC voltage	208V	480V	208V	480V	600V
Input side (DC)					
Number of independent MPPT Channels	2; programmable for 1 MPPT				
Maximum usable power for each MPPT channel	6800W				
Absolute maximum voltage (Vmax)	520V				
Start-up voltage (Vstart)	200V (adj. 120V min.)				
Full power MPPT voltage range	220-470V				
Operating MPPT voltage range	0.7 x Vstart - 520				
Maximum current (Idcmax) for both MPPT in parallel	48A				
Maximum usable current per MPPT channel	24A				
Maximum short circuit current (Isc max.) per MPPT channel	29A				
Maximum short circuit current (Isc max.) for both MPPT in parrallel	58A				
Number of inputs (strings) per MPPT channel	Standard version: 2; -S1 version: 3; -S2 version: 3				
Array wiring termination type	Terminal block, pressure clamp, 20AWG-6AWG				
Output side (AC)					
Grid connection type	3Ø/3W or 4W + Ground				
Default voltage range	183-228V	422-528V	183-228V	422-528V	528V-660V
Nominal grid frequency	60Hz				
Adjustable grid frequency range	57-63 Hz				
Maximum Current (Iac max/phase)	30.0A_{RMS}	14.0A_{RMS}	30.0A_{RMS}	14.0A_{RMS}	10.6A_{RMS}
Power factor	>0.995 (adj. ±0.9)				
Total harmonic distortion (at rated power)	<2%				
Grid wiring termination type	Terminal block, pressure clamp, 12AWG-4AWG				
Fault current	44.4A_{RMS}	30.6A_{RMS}	44.4A_{RMS}	30.6A_{RMS}	18.65A_{RMS}
Input protection devices					
Reverse polarity protection	Yes				
Over-voltage protection type	Varistor, 2 for each channel				
PV array ground fault detection	GFDI (GFD fuse) per UL 1741/ NEC 690.5				
Output protection devices					
Anti-islanding protection	Meets UL 1741/IEEE1547 requirements				
Over-voltage protection type	1 varistor per line (3), 1 gas arrester to PE				
Efficiency					
Maximum efficiency	96.5%	97.3%	96.5%	97.3%	97.3%
CEC efficiency	96.0%	97.0%	96.0%	97.0%	97.0%
Operating parameters					
Feed-in power threshold	30W_{RMS}				
Stand-by consumption	< 8W_{RMS}				
Communication					
User-interface (display)	16 characters x 2 lines LCD display				
Standard communication interfaces	(1) RS485 connection. Standard Aurora protocol. Optional Modbus				
Optional remote monitoring logger	VSN 700 Data Logger				
Environmental					
Ambient air operating temperature range	-13°F to +140°F (-25°C to +60°C) Derating above +104°F (+40°C)	-13°F to +140°F (-25°C to +60°C) Derating above +122°F (+50°C)	-13°F to +140°F (-25°C to +60°C) Derating above +104°F (+40°C)	-13°F to +140°F (-25°C to +60°C) Derating above +122°F (+50°C)	-13°F to +140°F (-25°C to +60°C) Derating above +113°F (+45°C)
Ambient storage temperature range	-40°F to +176°F (-40°C to +80°C)				
Relative humidity	0-100 % condensing				
Acoustic noise emission level	<50 db (A) @ 1m				
Maximum operating altitude without derating	6560ft (2000m)				

*Capability enabled at nominal AC voltage and with sufficient DC power available

Block diagram of PVI-10.0-I-OUTD





Technical data and types

Type code	PVI-10.0-I-OUTD-US		PVI-10.0-I-OUTD-CAN		
Mechanical specifications					
Enclosure rating	NEMA 4X				
Cooling	Natural convection				
Dimensions (H x W x D)	Standard: 28.2 x 25.4 x 8.7in / 716 x 645 x 222mm -S1, -S2 version: 37.7 x 25.4 x 8.7in / 958 x 645 x 222mm				
Unit weight	Standard: 101lbs (45.8kg); -S1: 107 lbs (48.5kg); -S2: 114lbs (51.7kg)				
Shipping weight	With pallet: 254lbs (<115kg); without pallet: 143lbs (<65kg)				
Conduit connections	Bottom: (1) 1/2" KO, (2) 1" pluggable opening, (4) 1/2" pluggable openings / Left and Right Side: (1) Concentric KO 3/4", 1"/ Back: (4) Concentric KO 3/4", 1"				
Mounting system	Wall bracket				
Ground fault detector fuse size/type	1A / 600V 10 x 38mm				
Optional string combiner fuse size/type (-S1 and -S2)	15A / 600V 10mm x 38mm				
Optional DC switch current rating (per contact)	32A				
Safety					
Isolation level	Isolated - High frequency transformer				
Safety and EMC standard	UL 1741, IEE1547, IEE1547.1, CSA-C22.2N. #107.1-01				
Safety Approval	cCSAus				
Warranty					
Standard warranty	10 years				
Extended Warranty	15 & 20 years				
Available models					
Standard	PVI-10.0-I-OUTD-US-208-NG	PVI-10.0-I-OUTD-US-480-NG	PVI-10.0-I-OUTD-CAN-208-NG	PVI-10.0-I-OUTD-CAN-480-NG	PVI-10.0-I-OUTD-CAN-600-NG
With DC switch and DC fuses	PVI-10.0-I-OUTD-S1-US-208-NG	PVI-10.0-I-OUTD-S1-US-480-NG	PVI-10.0-I-OUTD-S1-CAN-208-NG	PVI-10.0-I-OUTD-S1-CAN-480-NG	PVI-10.0-I-OUTD-S1-CAN-600-NG
With AC and DC switches and DC fuses	PVI-10.0-I-OUTD-S2-US-208-NG	PVI-10.0-I-OUTD-S2-US-480-NG	PVI-10.0-I-OUTD-S2-CAN-208-NG	PVI-10.0-I-OUTD-S2-CAN-480-NG	PVI-10.0-I-OUTD-S2-CAN-600-NG

Information in this document is subject to change without notice

Solar inverters

ABB string inverters
TRIO-20.0/27.6-TL-OUTD
20kW to 27.6kW

A commercial photovoltaic (PV) system using a TRIO-based modular architecture can reduce BOS costs by as much as 40 percent.

The TRIO is a modular option using models at 20.0kW and 27.6kW.
It can be used alone for a 20kW system or combined as building blocks for large commercial and utility scale systems. With two independent Multiple Power Point Trackers (MPPT) and peak efficiency ratings of 98.2 percent, these inverters offer superior energy harvest. The flat efficiency curves offer high efficiency at all output levels ensuring consistent and stable performance across the entire input voltage and output power range.
Employing fan-less convection cooling and no electrolytic capacitors, TRIO is designed for long service life.

The TRIO offers flexible power factor control to comply with utility grid requirements where required.
As the first 1000Vdc string inverter certified to UL1741, the TRIO leads the way for efficient, cost-saving, decentralized system design.
The TRIO is equipped with integrated Modbus and utility interactive controls including adjustable power factor and curtailment. Additional AC and DC protections as well as arc-fault circuit interruption are all available in the TRIO. These inverters provide the monitoring, control features, and protection required in today's commercial solar installations.

Highlights:
- This flexible and dependable three-phase string inverter has innovative features to lower system Levelized Cost Of Energy (LCOE) and improve Return on Investment (ROI) on commercial solar installations.
- Fully utilize available roof space and maximize harvest with dual independent MPPT.
- Wall-mountable design and 1000Vdc input voltage lower installation and material costs.

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Additional highlights:

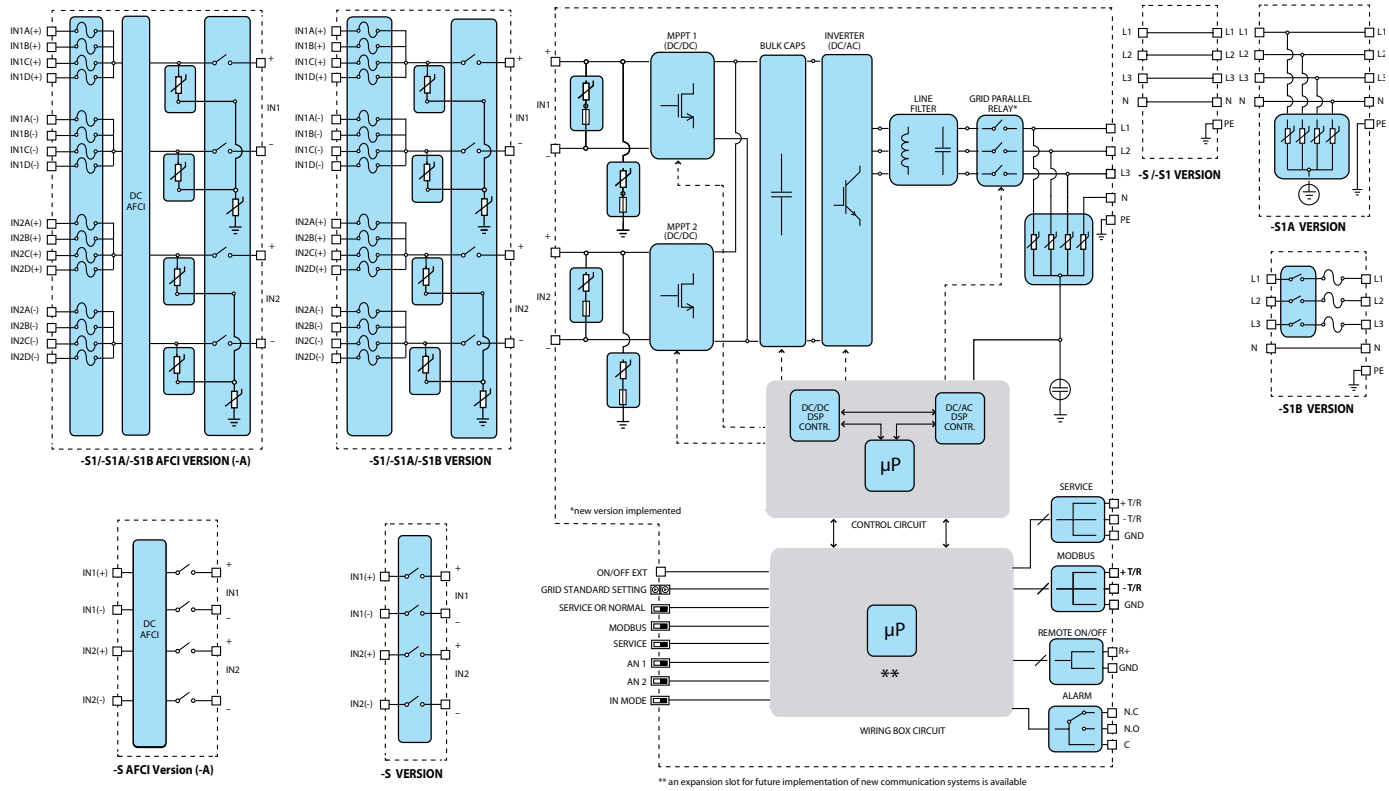
- Multiple AC and DC level protection options available including arc-fault circuit interruption (AFCI).
- Wide DC input voltage and operating temperature range enable greater PV array design flexibility.
- Modular design capability improves system availability and eliminates single point of failure.
- Utility interactive control features and Modbus protocol integrates with monitoring and control systems.
- Design uses natural convection cooling and no electrolytic capacitors for increased reliability.
- This inverter comes with a standard 10 year warranty. Extended warranty offered at 15 and 20 years.

Technical data and types

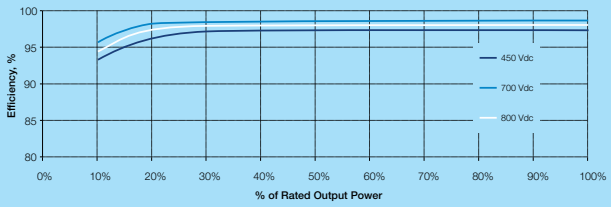
Type code	TRIO-20.0-TL-OUTD	TRIO-27.6-TL-OUTD
Nominal output power	20000W	27600W
Maximum output power	22000W[1]	30000W[1]
Rated grid AC voltage	480V	
Input side (DC)		
Number of independent MPPT channels	2; Programmable for 1 MPPT	
Maximum usable power for each MPPT channel	12000W	16000W
Absolute maximum voltage (V_{max})	1000V	
Start-up voltage (V_{start})	360V (adj. 250-500V)	
Full power MPPT voltage range	450-800V	520-800V
Operating MPPT voltage range	200-950V	
Maximum usable current (Idc max) per MPPT channel	25.0A	30.9A
Maximum short circuit current (Isc max) per MPPT channel	30.0A	36.0A
Number of inputs (strings) per MPPT channel	-S version: 1; -S1, -S1A, -S1B versions: 4	
Array wiring termination type	Terminal block, screw terminal, copper only, -S: 12AWG-2AWG; -S1, -S1A, -S1B: 12AWG-6AWG	
Output side (AC)		
Grid connection type	3Ø/3W or 4W + Ground	
Default voltage range	422-528V	
Adjustable voltage range	240-552V	
Nominal grid frequency	60Hz	
Adjustable grid frequency range	57-63Hz	
Maximum current (Iac max/phase)	27.0 A_{RMS}	36.0 A_{RMS}
Power factor	> 0.995 (adj. ±0.8, or ±0.9 for active power >20kW)	>0.995 (adj. ± 0.8, or ±0.9 for active power >27.6kW)
Total harmonic distortion at rated power	<3	
Grid wiring termination type	Pass-through terminal. Tension clamp. Copper 8AWG-4AWG	Pass-through terminal. Tension clamp. Copper 6AWG-4AWG
Input protection devices		
Reverse polarity protection	Yes, passive inverter protection only.[2]	
Supplementary over-voltage protection type for each MPPT	-S1, -S1A, -S1B version: plug-in class II modular surge arrestor	
PV array ground fault detection	Meets UL1741/NEC requirements	
Output protection devices		
Anti-islanding protection	Meets UL1741/IEEE 1547 requirements	
Supplementary over-voltage protection type	-S1A version: plug-in class II modular surge arrestor	
Optional AC fused disconnect current rating (per contact)	35A	45A
Operating performance		
Maximum efficiency	98.2%	
CEC efficiency	97.5%	
Feed-in power threshold	65W_{RMS}	70W_{RMS}
Communication		
User-interface display	5.5“ x 1.25“ graphic display	
Standard communication interfaces	(1) RS485 connection, can be configured for Aurora protocol or Modbus RTU. Support for optional monitoring expansion cards.	
Optional remote monitoring logger	Aurora Logger Commercial (optional)	
Environmental		
Ambient operating temperature range	-22°F to +140°F (-30°C to +60°C) Derating above +113°F (45°C)	
Ambient storage temperature range	-40°F to +185°F (-40°C to +85°C)	
Relative humidity	0-100% condensing	
Acoustic noise emission level	<50 db (A) @1m	
Maximum operating altitude without derating	6560ft (2000m)	
Mechanical specifications		
Enclosure rating	NEMA 4X	
Cooling	Natural Convection	
Dimensions (H x W x D)	41.7 x 27.6 x 11.5 in. / 1061 x 702 x 292 mm.	
Unit weight	157lbs (71kg)	168lbs (76kg)
Conduit connections	Bottom: (2) concentric DC KOs 1“, 1 1/2“ on removable plate, (2) 1/2“ plugged comm. openings, (1) 1“ plugged AC opening	
Mounting system	Wall bracket	

1. Capability enabled within maximum input current, maximum input power, maximum output current, and ambient operating temperature limits
2. In -S1, -S1A and -S1B models, the string polarity must be verified before connection. Please refer to installation manual for the correct installation procedure.

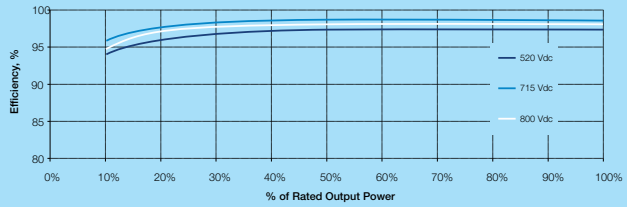
Block diagram of TRIO-20.0/27.6-TL-OUTD



TRIO-20.0-TL-US



TRIO-27.6-TL-US



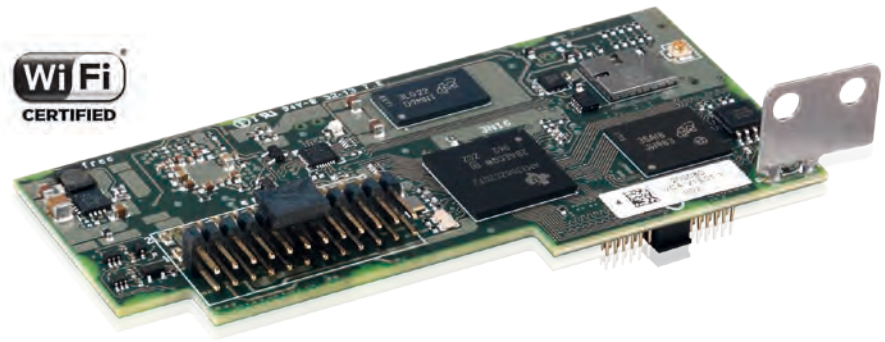
Technical data and types

Type code	TRIO-2.0-TL-OUTD	TRIO-27.6-TL-OUTD
Safety		
Isolation level	Transformerless. Floating Array Required.	
Safety and EMC standard	UL1741, IEEE1547, IEEE1547.1, CSA C22.2 107.1-01-2001, FCC Part 15 Sub-part B Class B Limits	
Safety approval	cCSA$_{US}$	
Warranty		
Standard warranty	10 years	
Extended warranty	15 & 20 years	
Available models		
Standard with DC disconnect	TRIO-20.0-TL-OUTD-S-US-480	TRIO-27.6-TL-OUTD-S-US-480
With DC disconnect, DC fuses and DC surge protection	TRIO-20.0-TL-OUTD-S1-US-480	TRIO-27.6-TL-OUTD-S1-US-480
With DC disconnect, DC fuses, DC surge protection and AC surge protection	TRIO-20.0-TL-OUTD-S1A-US-480	TRIO-27.6-TL-OUTD-S1A-US-480
With DC disconnect, DC fuses, DC surge protection and AC fused disconnect	TRIO-20.0-TL-OUTD-S1B-US-480	TRIO-27.6-TL-OUTD-S1B-US-480
Standard with DC disconnect and Arc-Fault circuit interruption	TRIO-20.0-TL-OUTD-S-US-480-A	TRIO-27.6-TL-OUTD-S-US-480-A
With DC disconnect, DC fuses, DC surge protection and Arc-Fault circuit interruption	TRIO-20.0-TL-OUTD-S1-US-480-A	TRIO-27.6-TL-OUTD-S1-US-480-A
With DC Disconnect, DC fuses, DC surge protection, AC surge protection and Arc-Fault circuit interruption	TRIO-20.0-TL-OUTD-S1A-US-480-A	TRIO-27.6-TL-OUTD-S1A-US-480-A
With DC disconnect, DC fuses, DC surge protection, AC fused disconnect and Arc-fault circuit interruption	TRIO-20.0-TL-OUTD-S1B-US-480-A	TRIO-27.6-TL-OUTD-S1B-US-480-A

All data is subject to change without notice

Solar inverters

ABB monitoring and communications
VSN300 Wifi Logger Card



The VSN300 Wifi Logger Card is a new, advanced expansion board for ABB's UNO and TRIO string inverters which provides residential and commercial users with an advanced and cost-effective solution for monitoring and controlling their photovoltaic system.

The VSN300 Wifi Logger Card is easy to install, for new and most existing string inverters by using the inverter's internal expansion slot.

The built-in IP networking connectivity and innovative Wi-Fi commissioning techniques enable this card to be easily configured for most Wi-Fi networks and access points without installing any additional external devices.

Complete, remote and local monitoring with Wifi Logger Card and new free mobile app.

Users have a complete remote and local monitoring experience when combining VSN300 Wifi Logger Card with ABB's new free mobile app; "Plant Viewer for Mobile". It is available for both iOS and Android based devices.

The local web server in VSN300 Wifi Logger Card adds the ability to use a standard web browser to access inverter data.

The Wi-Fi Certified™ mark assures interoperability, security, easy installation, and reliability. With innovative commissioning and upgrade features, the VSN300 Wifi Logger Card provides the best user experience for ABB's customers.

Not only is the VSN300 Wifi Logger Card suitable for most of ABB's string inverters currently deployed, it takes advantage of the Hyperlink bus found in new inverters for obtaining real-time data that can be used for grid control power management.

Highlights

- The Wi-Fi Certified™ mark assures interoperability with IEEE 802.11b/g/n networks over the 2.4GHz band
- Easily installed on new and existing UNO and TRIO string inverters
- IEEE 802.11b/g/n (2.4 GHz) support
- Local, remote monitoring in one solution
- High performance non-volatile data logging
- High-speed inverter data exchange through Hyperlink [where available]
- Modbus TCP server for SCADA integration
- SunSpec certified Modbus mapping for easy integration
- Secured and encrypted data transfer to Aurora Vision® Plant Management Platform

Additional highlights

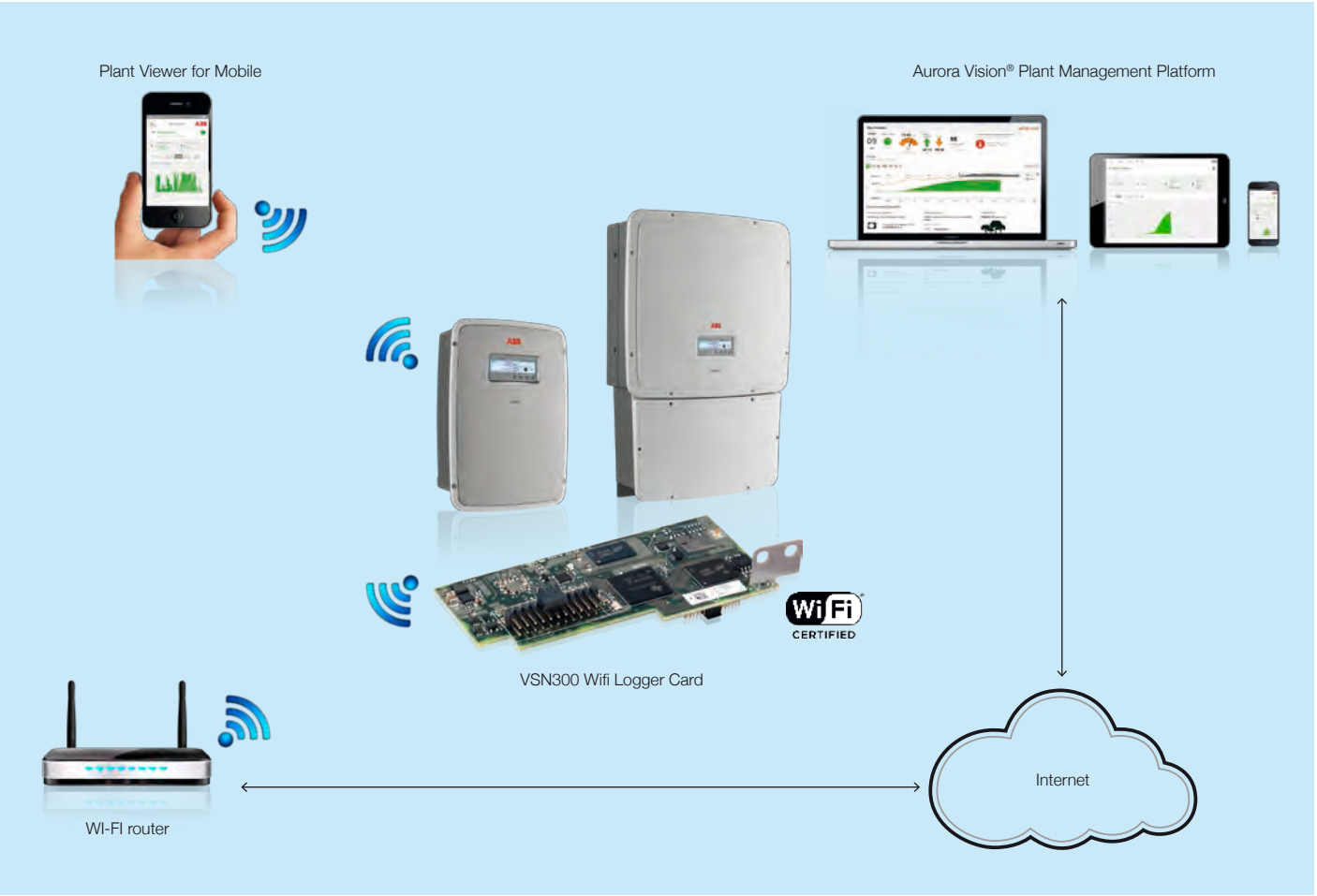
– Remote reading and writing of inverter parameters for advanced operations
– California Rule 21 ready

Technical data and types

Type code	VSN300 Wifi Logger Card
Communication interfaces	
Inverter interface	Hyperlink (CAN@1 Mbps + RS485@115 kBaud) / Legacy (RS232 TTL @ 19.2 kBaud)
User interface	Wi-Fi Certified™ IEEE 802.11 b/g/n (2,4 GHz)
Communication protocols	
Protocolli LAN/WAN	HTTPS, DHCP, NTP, SSL, SSH, XML, Modbus TCP (Sunspec)
Monitoring	
Web user interface (WUI)	Integrated
Local monitoring	wirelessly allowed via any Wi-Fi® device connecting the integrated WUI or running Plant Viewer for mobile
Remote monitoring	Plant Portfolio Manager® / Plant Viewer™ / Plant Viewer for mobile
Data logging specifications	
Data sampling rate	High frequency data sampling (less than 1 minute average)
Local data storage	Log data for 30 days based on 15-minute intervals
Upgradeability	Remotely via Aurora Vision® Plant Management Platform / Locally via Web User Interface
Advanced functionalities	
Remote O&M operations	Inverter's parameters changing / Inverter's firmware upgrade
Smart grid functionalities	Grid control power-management enabled
Power supply	
DC power supply output	~ 2W
Environmental parameters	
Ambient temperature range	[-20; +85] °C
Environmental protection	IP 20
Relative humidity	<85% Non-condensing
Mechanical parameters (per unit)	
Dimensions (H x W x D)	3.81’ x 1.81’ x 0.63’ (97 mm x 46mm x 16mm)
Weight	0.06 lbs (26g)
Mounting System	inverter's expansion slot
Compliance	
Marking	CE / FCC / RCM / Wi-Fi Certified™
Compliance	
Emissions	FCC Part 15 Class B, CISPR 22, EN 55022 Conducted and radiated emission
Immunity	EN55024

Remark. Features not specifically listed in the present data sheet are not included in the product

Application with VSN300 Wifi Logger Card



Inverter matrix compatibility

Inverter family	Monitoring	Remote O&M Operations
UNO-2.0	Yes	No
UNO-2.5	Yes	No
PVI-3.0	Yes	No
PVI-3.6	Yes	No
PVI-3.8	Yes	No
PVI-4.2	Yes	No
PVI-4.6	Yes	No
PVI-5000	Yes	No
PVI-6000	Yes	No
PVI-6.0	Yes	No
PVI-8.0	Yes	No
PVI-10.0	Yes	No
PVI-12.5	Yes	No
TRIO-5.8	Yes	Yes
TRIO-7.5	Yes	Yes
TRIO-8.5	Yes	Yes
TRIO-20	Yes	No
TRIO-27.6	Yes	No

Block diagram of VSN300 Wifi Logger Card

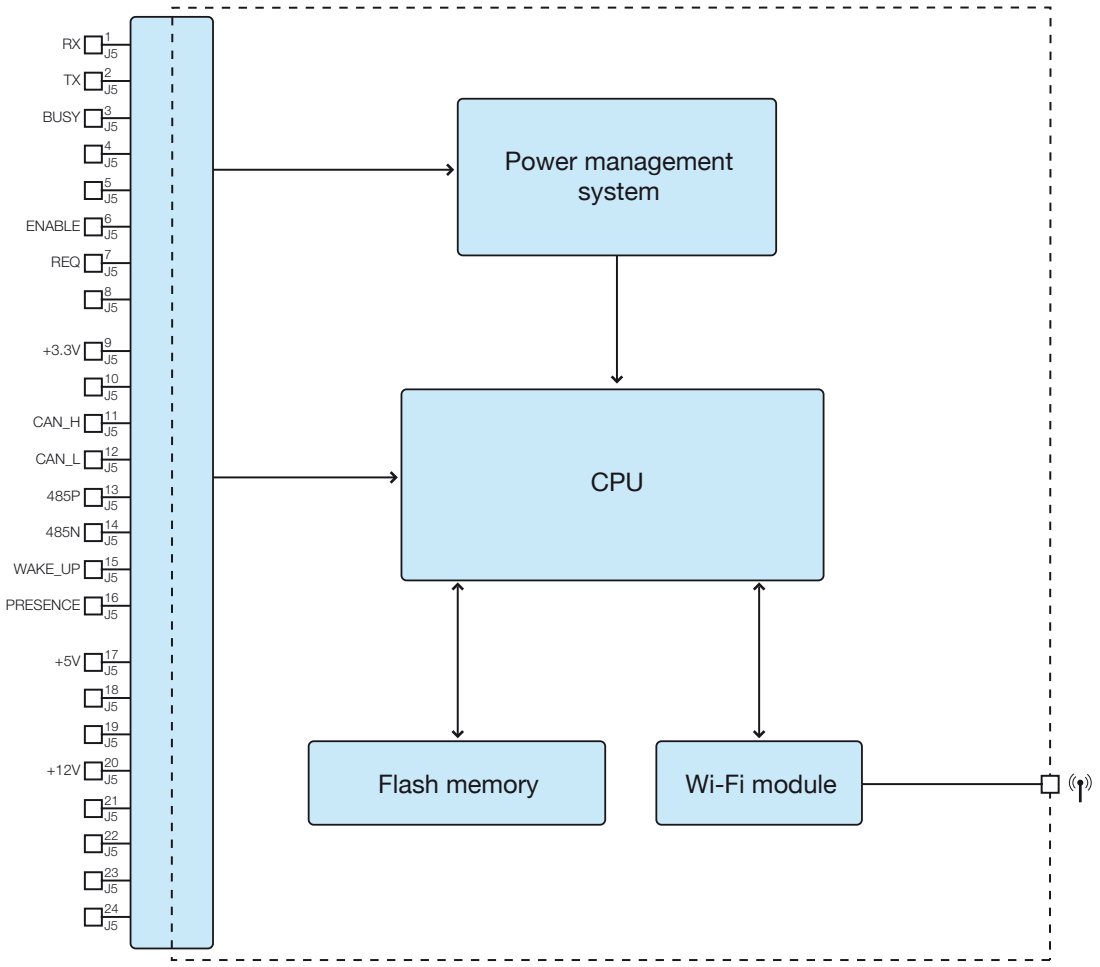


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ABB monitoring and communications
VSN700 Data Logger
VSN700-01/ VSN700-03/VSN700-05

The high-performance VSN700 Data Logger provides simple and quick commissioning with device discovery and automatic IP addressing as well as remote management features.

This SunSpec compliant data logger records data and events from inverters, energy meters, weather stations, and other photovoltaic plant devices and acts as an Internet gateway to send the data securely and reliably to the Aurora Vision® Plant Management Platform for performance monitoring, condition monitoring and data reporting.

The VSN700 Data Logger is also available integrated in turnkey solutions, such as VSN730 System Monitor.

Three performance levels

The VSN700 Data Logger is available in three performance levels to fit anyone's budget and functionality:

VSN700-01 Data Logger is available to those residential customers who only need to monitor up to five (5) single-phase inverters.

VSN700-03 Data Logger is a cost-optimized logger for small commercial installations up to ten (10) single and three phase string inverters and one weather station (VSN800).

VSN700-05 Data Logger provides both customer data management and inverter command and control for commercial and utility PV system operation, as well as SCADA integration.

Highlights

All VSN700 Data Logger models include:

- Data management system with serial and Ethernet ports for data and event logging
- Quick installation and fast plug-n-play commissioning with device discovery mechanism
- Network Provisioning with dynamic IP addressing (DHCP client and server)
- Reliable and secure transmission of operational data to Aurora Vision® Plant Management Platform
- Remote configuration and management capabilities, including firmware upgrades over the Internet using Aurora Vision® Plant Portfolio Manager
- Simple end-user UI using Aurora Vision® Plant Viewer

Additional highlights

VSN700-05 Data Logger (Max) includes the following additional functionality:

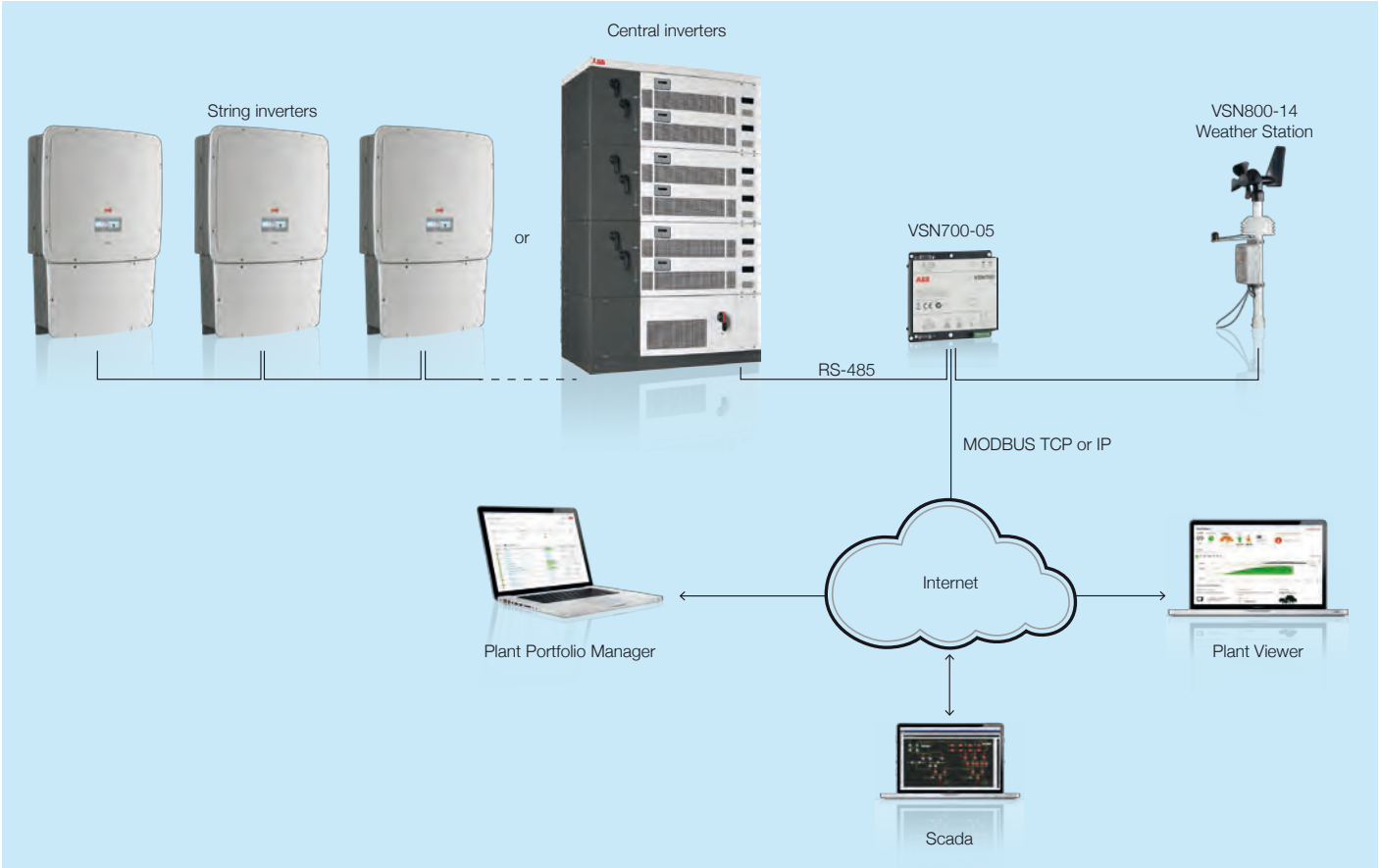
- No software limitation on number of devices logged
- Limitation is set by memory and bandwidth usage
- Modbus TCP server using SunSpec compliant Modbus maps for easy SCADA system integration, data collection, and inverter command execution
- Support for most ABB inverters, meters, smart combiners and weather stations

Technical data and types

Type code	VSN700 Data Logger
Communication interfaces	
Serial port interface	(2) RS-485 + (2) RS-232
Maximum devices per serial port	Physical limitation of 32 (reduced by poll rate, inverter data set size, and logger type)
Fieldbus cable	RS-485 Shielded Twisted Pair. Recommend Belden # 1120A cable or # 3106A for 3 conductors
Ethernet port 0	Firewall protected Ethernet WAN port for Internet connection
Ethernet port 1	Local LAN with static IP address
Ethernet connections	RJ-45 Ethernet 10/100 base-T (LAN/WAN)
Communication protocols	
Plant fieldbus protocols	Aurora Protocol, Modbus RTU (SunSpec)
LAN/WAN protocols	HTTP, DHCP, SSL, SSH, XML
Data logging specifications	
Data sampling rate	High frequency data sampling (less than 1 minute average)
Local storage	Log data for 30 days based on 15-minute intervals (Days logged may be reduced by intervals shorter than 7 minute)
Upgradeability	Field upgradable over the Internet or locally via USB memory stick
Power Supply	
AC power supply input	100 - 240 VAC
DC power supply output	12VDC, 1A
Environmental parameters	
Ambient temperature range	0 °C - 40 °C
Environmental protection	IP 20
Relative humidity	<85% Non-condensing
Mechanical parameters (per unit)	
Dimensions (H x W x D)	1” x 5.5” x 5.25” (.03m x .14m x .13m)
Weight	2 lbs (0.91kg)
Mounting system	Screws through flanges
Accessories	
VSN-MGR-DIN	Din rail mount kit to mount logger on a din rail
VSN800-12	Weather Station with sensors: ambient temperature, panel temperature, global irradiance
VSN800-14	Weather Station with sensors: ambient temperature, panel temperature, global irradiance, plane of array irradiance, wind speed & direction
Compliance	
Emissions	FCC Part 15 Class B, CISPR 22, EN 55022 Conducted and Radiated Emission
Immunity	EN55024

Remark. Features not specifically listed in the present data sheet are not included in the product

Commercial and utility application with VSN700-05



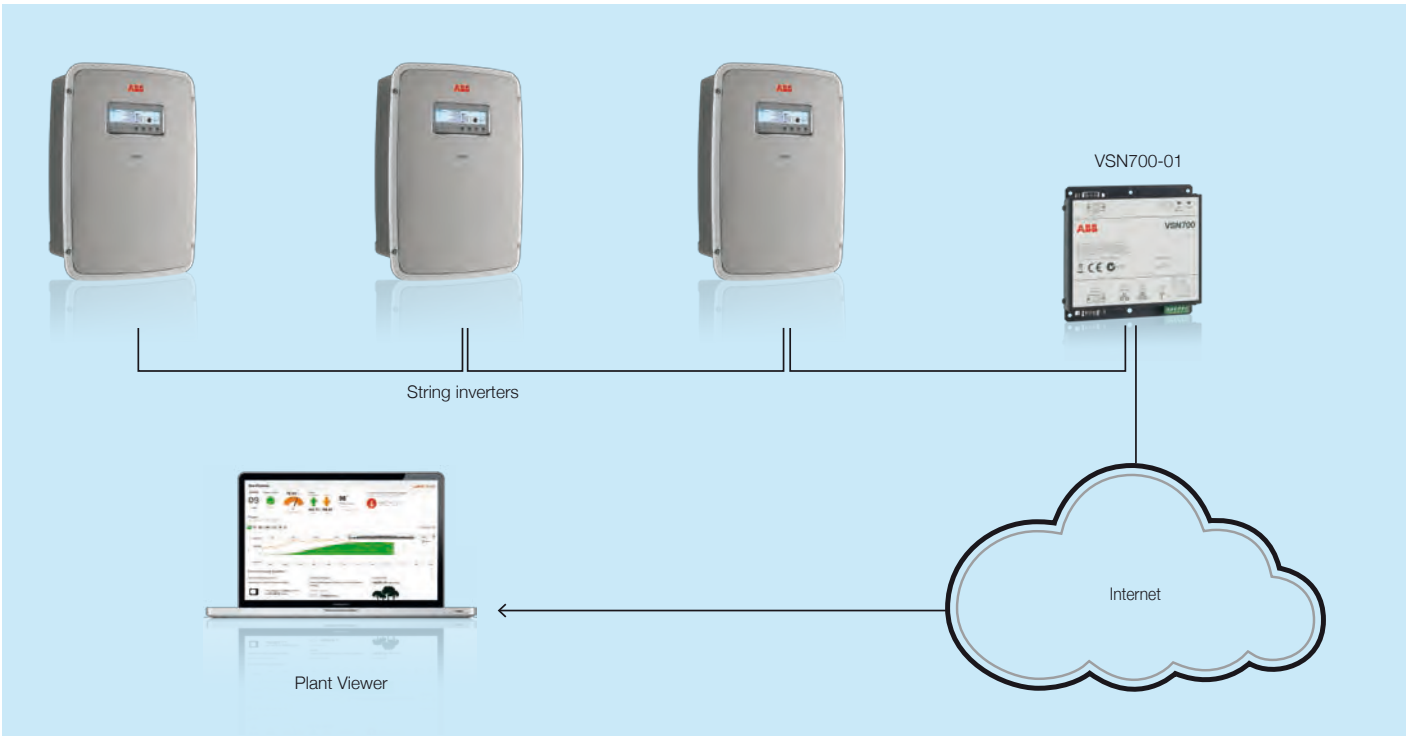
VSN700 Data Logger model comparison

Type code	VSN700-01	VSN700-03	VSN700-05
Logging Real Time Power Values	15-minute intervals only	1,3,5, 15 minute configurable intervals	1,3,5, 15 minute configurable intervals
Modbus/TCP Server	No	No	Yes
Inverter Control Commands	No	No	Yes
Devices Supported	5x ABB inverters	10x ABB inverters	All ABB inverters
	Single phase (only) string inverters	Three and single phase string inverters	Other ABB devices and third party devices (Consult latest supported list)
		1 x VSN800-XX Weather Station	

VSN700 Data Logger Accessories

VSN-MGR-DIN	Din rail kit to mount logger on a din rail	
VSN800-12	Weather Station with sensor: ambient, panel, global irradiance	
VSN800-14	Weather Station with sensor: ambient, panel, global irradiance, plane of array irradiance, wind speed and direction	

Residential application with VSN700-01



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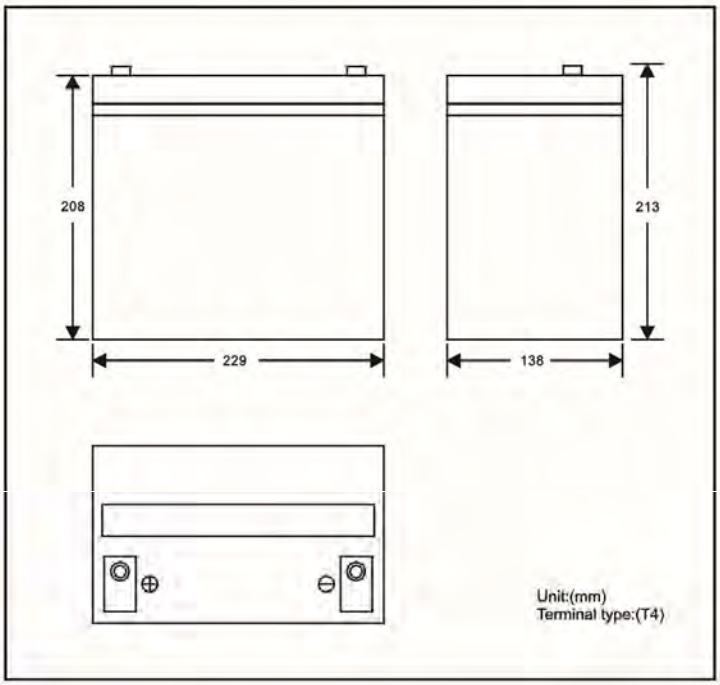


■ Specifications

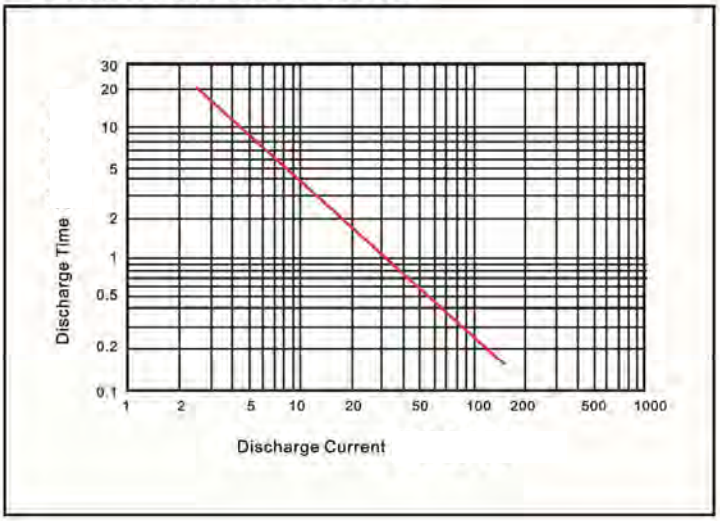
GELA	OT55-12	
Nominal Voltage		12V
Rated Capacity (20 hours rate)		55.0Ah
Dimension (±2mm)	Total Height (with terminals)	222mm
	Length Width Height	229mm 138mm 222mm
Weight (Approx)		16.60Kg

■ Characteristics

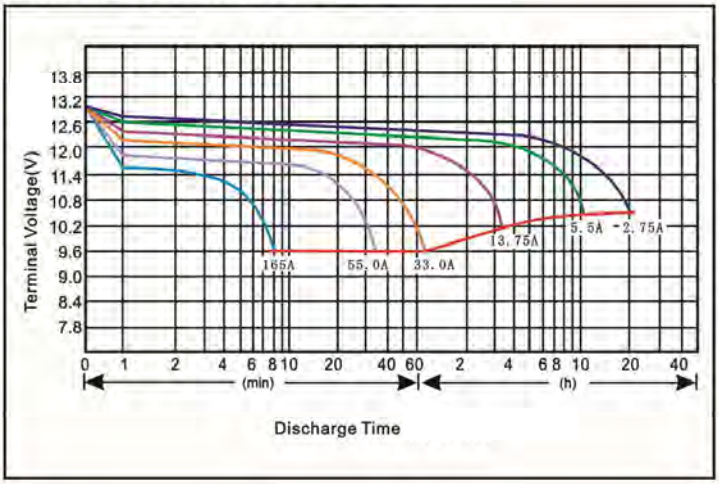
Capacity (25°C)	20 hours rate	(2.75A)	55Ah
Discharge Current Testing (25°C)	20 I_{20} rate 60 I_{20} rate	(55A, 27min) (16.5A, 7min)	35min 8min
Internal Rasistance	Full Charged Battery 25°C 25°C		6mΩ
Capacity Affected By Temperature (20 hours rate)	40°C 25°C 0°C -15°C		102% 100% 85% 62%
Residual Capacity (25°C) (25°C)	Capacity After 3 Months Storage Capacity After 6 Months Storage Capacity After 12 Months Storage		91% 82% 64%
Cycle (Above 300 Time)	Discharge 2hrs at 13.75A Current Charge 6hrs at 5.5A Current (25°C)		
Charge (Constant Voltage) Cycle (25°C)	Initial Charging Current Less Than 16.5A; Voltage 14.5~14.9V		
Charge (Constant Voltage) Float (25°C)	Charge Voltage 13.6~13.8V		

★ The above are average and date obtained from the first 3 charge/discharge cycles. These are not minimum values.

■ Discharge Current & Duration Time



■ Discharge Current 25°C



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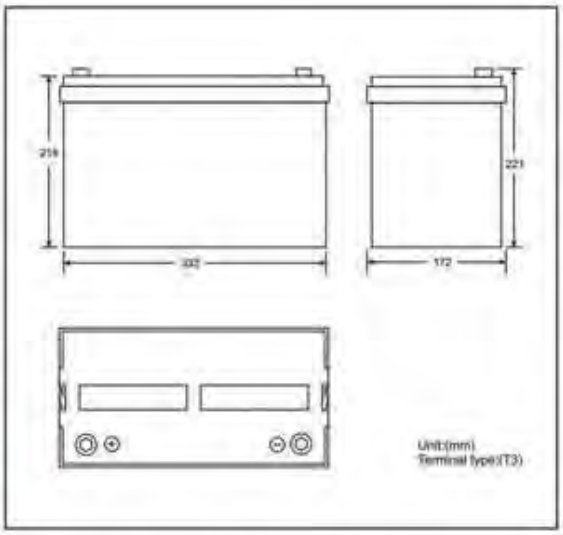


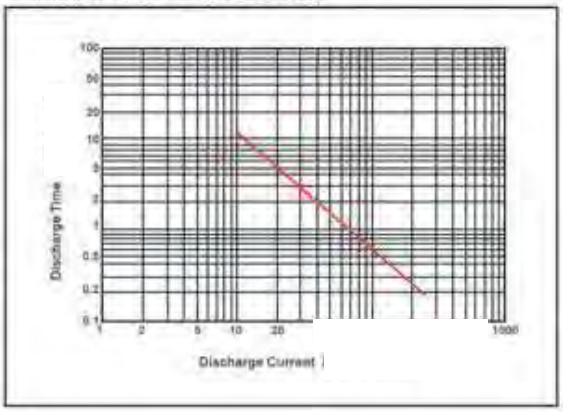
Specifications

GELA OT 100-12A		
Nominal Voltage		12V
Rated Capacity (10 hours rate)		100Ah
Dimension (±2mm)	Total Height (with terminals)	221mm
	Length Width Height	333mm 172mm 218mm
Weight (Approx)		31.3Kg

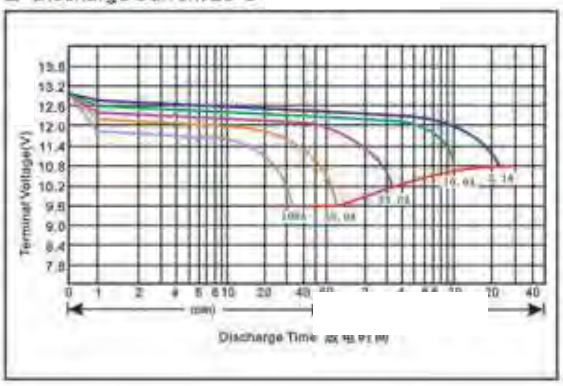
Characteristics

Capacity (25°C)	10 hours rate (10A) 3 hours rate 25A) 1 hours rate 55A)	100Ah 78Ah 60Ah
Internal Resistance	Full Charged Battery 25°C	3.5mΩ
Capacity Affected	40°C 25°C 0°C -15°C	102% 100% 85% 62%
Residual Capacity (25°C)	Capacity After 3 Months Storage Capacity After 6 Months Storage Capacity After 12 Months Storage	91% 82% 64%
Float Service Life (Above 3 Years)	Voltage 13.6~13.8V/12V (25°C)	
Design Life	Above 5 Years	
Charge (Constant)	Initial Charging Current Less Than 30A;	

★ The above are average and date obtained from the first 3



Discharge Current 25°C



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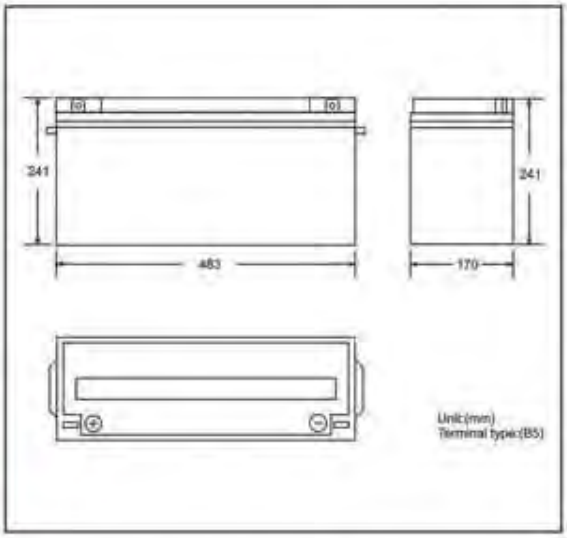


Specifications

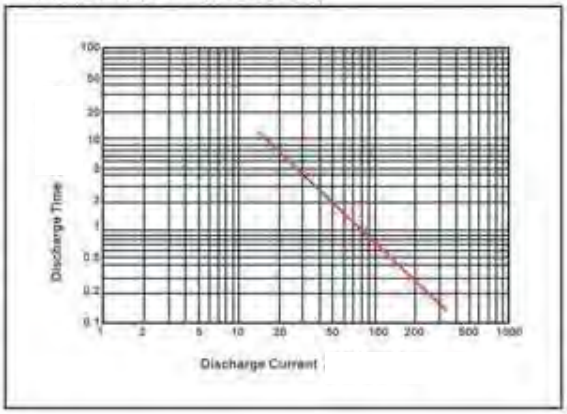
GELA OT 150-12		
Nominal Voltage		12V
Rated Capacity (10 hours rate)		150Ah
Dimension (±2mm)	Total Height (with	241mm
	Length Width Height	483mm 170mm 241mm
Weight (Approx)		43.9Kg

Characteristics

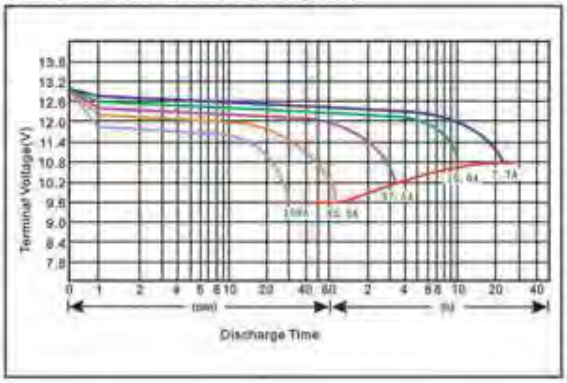
Capacity (25°C)	10 hours rate (15A) 3 hours rate (37.5A) 1 hours rate (82.5A)	150Ah 113Ah 86Ah
Internal Resistance	Full Charged Battery 25°C 25°C	3.3mΩ
Capacity Affected By Temperature (10 hours rate)	40°C 25°C 0°C -15°C	102% 100% 85% 62%
Residual Capacity (25°C)	Capacity After 3 Months Storage Capacity After 6 Months Storage Capacity After 12 Months Storage	91% 82% 64%
Float Service Life (Above 3 Years)	Voltage 13.6~13.8V/12V (25°C)	
Design Life	Above 5 Years	
Charge (Constant Voltage 25°C)	Initial Charging Current Less Than 45A; Voltage 14.5~14.9V	

★ The above are average and date obtained from the first 3 charge/discharge cycles. These are not minimum values.

Discharge Current & Duration Time



Discharge Current 25°C



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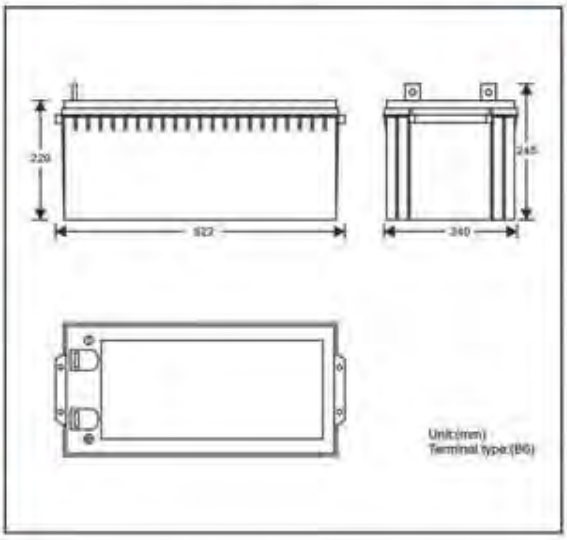


■ Specifications

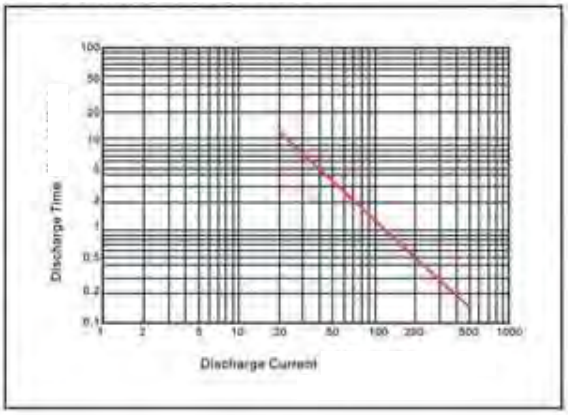
GELA OT 200-12		
Nominal Voltage		12V
Rated Capacity (10 hours rate)		200Ah
Dimension (±2mm)	Total Height (with terminals)	245mm
	Length Width Height	522mm 240mm 220mm
Weight (Approx)		60.8Kg

■ Characteristics

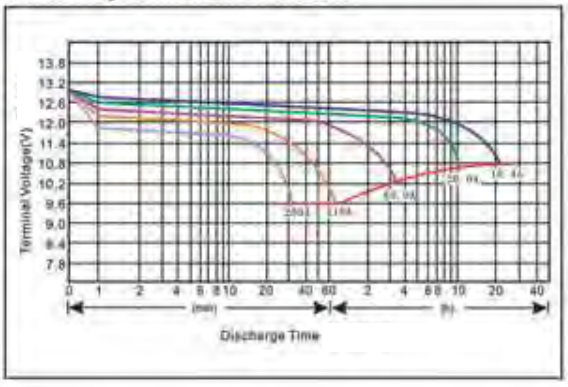
Capacity	10 hours rate (20A) 3 hours rate (50A) 1 hours rate (110A)	200Ah 155Ah 120Ah
Internal Resistance	Full Charged Battery 25°C	2.6mΩ
Capacity Affected By Temperature (10 hours rate)	40°C 25°C 0°C -15°C	102% 100% 85% 62%
Residual Capacity (25°C)	Capacity After 3 Months Storage Capacity After 6 Months Storage Capacity After 12 Months Storage	91% 82% 64%
Float Service Life (Above 3 Years)	Voltage 13.6~13.8V/12V (25°C) 13.6~13.8/12V (25°C)	
Design Life	Above 5 Years	
Charge (Constant Voltage 25°C)	Initial Charging Current Less Than 60A; Voltage 14.5~14.9V	

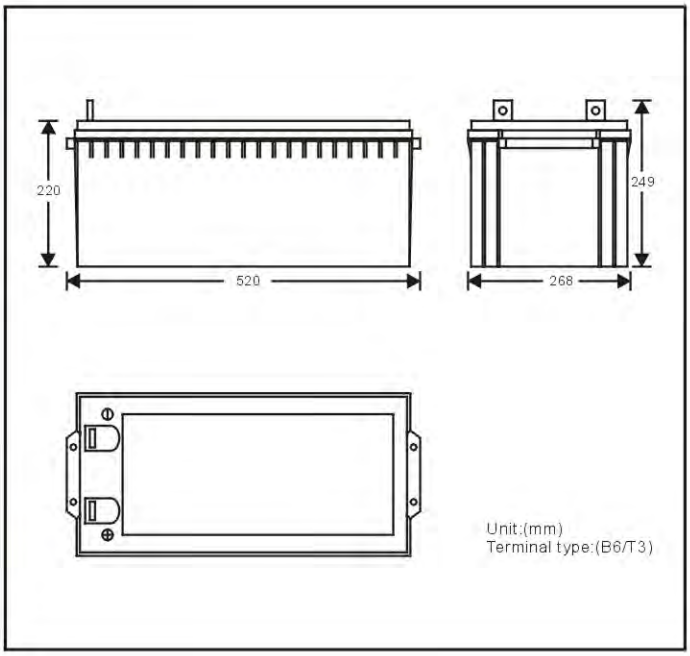
★ The above are average and date obtained from the first 3 charge/discharge cycles. These are not minimum values.

■ Discharge Current & Duration Time



■ Discharge Current 25°C





■ Specifications :

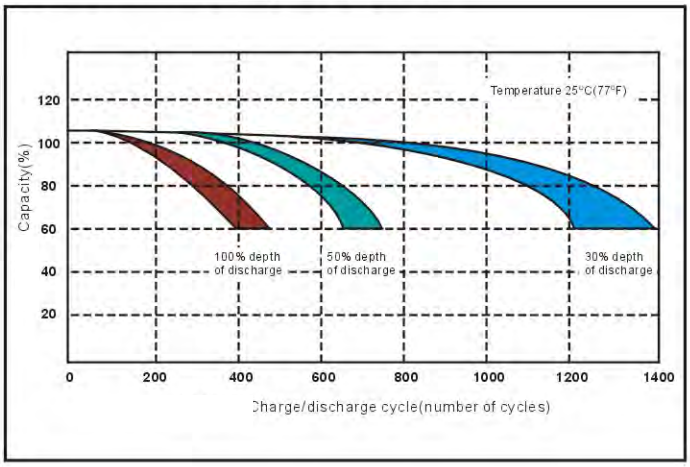
GELA OT 250-12L		
Nominal Voltage		12V
Rated Capacity (10 hours rate)		250Ah
Dimension (±2mm) 尺寸 (±2mm)	Total Height (with terminals)	249mm
	Length Width Height	520mm 268mm 220mm
Weight (Approx)		71.2Kg

■ Characteristics

Capacity (25°C)	10 hours rate (25A) 3 hours rate 62.5A) 1 hours rate 137A)	250Ah 193Ah 150Ah
Internal Rasistance	Full Charged Battery 25°C 25°C	2.6mΩ
Capacity Affected By Temperature (10 hours rate)	40°C 25°C 0°C -15°C	102% 100% 85% 62%
Residual Capacity (25°C)	Capacity After 3 Months Storage Capacity After 6 Months Storage Capacity After 12 Months Storage	91% 82% 64%
Float Service Life (Above 3 Years)	Voltage 13.6~13.8V/12V (25°C)	
Design Life	Above 5 Years	
Charge (Constant Voltage 25°C)	Initial Charging Current Less Than 75A; Voltage 14.5~14.9V	

★ The above are average and date obtained from the first 3 charge/discharge cycles. These are not minimum values.

Cycle Service Life



■ Discharge Current 25°C