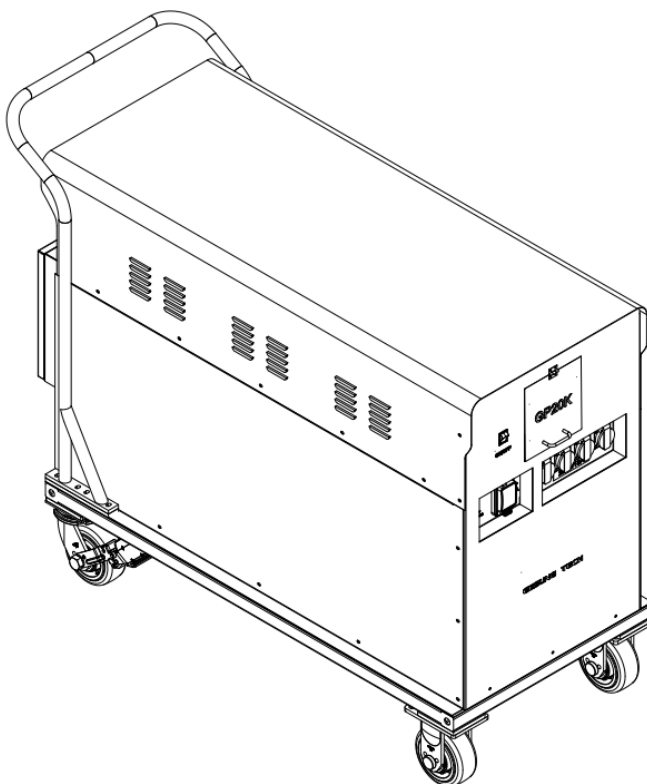


GESUNG

Engineering Power Supply

User Manual

GP20K



1. Keep Power Storage Generator and the accessories dry. DO NOT expose the product and accessories to high heat.
2. Never disassemble, puncture, shock, damage, or incinerate the product.
3. Recycle and dispose of Portable Power Station in accordance with local laws and regulations.
4. Pay attention to safety when handling the Power Storage Generator.
5. Children or people with disabilities should use the product under adult supervision.

Glossary

The following terms are used in this document to indicate various levels of potential harm that may be caused by improper operation.

NOTICE

The instructions, if not properly followed, may result in property damage and minor physical damage.

CAUTION

The instructions, if not properly followed, may result in property damage and serious physical damage.

WARNING

The instructions, if not properly followed, may result in property damage, major accident and serious injury.

WARNING

Read the ENTIRE User Manual before operating. Failure to operate the product correctly may result in damage to the product or personal property and cause serious injury. We will not assume any legal responsibility. DO NOT use the product with incompatible components or alter the product in any way without following the instructions provided by us. Failure to follow these instructions will render us after-sales services and the product warranty void. These Safety Guidelines include instructions for safety, operation and maintenance. It is important to read and follow all the instructions and warnings in the user manual before assembly, setup, or use.

Product Safety Guidelines

WARNING

Improper use may result in fire, property damage, or personal injury. Make sure to use the product according to the following safety rules and guidelines.

Product Disclaimer

Read all safety tips, warning messages, terms of use and disclaimers carefully.

Product Use:

1. DO NOT expose the product to any liquids. Do not immerse the product in water. DO NOT leave the batteries out in the rain or near a source of moisture. Moisture in the Power Storage Generator could cause short circuits, component failure, fires or even explosions.
2. Never use non-us parts. Go to distributor ask. We will takes no responsibility for any damage caused by the use of our parts.
3. Never install or remove other modules from the Power Storage Generator when it is turned on. DO NOT plug or unplug other modules when the power of the product is turned on, otherwise the power interface may be damaged.
4. Using the product in environments above 140°F (60°C) may cause fires or explosions. Using the product below -4°F (-20°C) will severely affect the performance of the product. Allow the product to return to a normal operating temperature before using it.
5. DO NOT use the batteries in strong electrostatic or electromagnetic environments. Otherwise, the battery control board may malfunction and cause a serious accident during use

6. Never disassemble or puncture the product in any way. Otherwise, it may leak, catch on fire, or explode.
7. DO NOT use the product if it was involved in a crash, accident, or a forceful jolt.
8. If the product falls into the water during use, take the product out immediately and put it in a safe and open area. Keep a safe distance from it until it is completely dry. Never use it again and dispose it properly as described in the Battery Disposal section below. If the product catches fire, it is recommended to use fire extinguishing equipment in the following order: water or water mist, sand, fire blanket, dry powder fire extinguisher, and carbon dioxide fire extinguisher.
9. DO NOT put the product in a microwave oven or in a pressurized container.
10. DO NOT allow pins, wires, or other metal pieces to enter the Power Storage Generator case, outlets, or controls. Metal pieces may short circuit the product.
11. Avoid collisions. DO NOT place heavy objects on top of the Power Storage Generator.
12. If there is dirt on any plug or outlet surface, use a dry cloth to clean it. Otherwise, it will cause abrasion and result in energy loss or the inability to charge

Product Charging:

1. Always use our approved charging cables. We do not take any responsibilities for any damages caused by using non-us charging cables.
2. DO NOT use different series products AC charging cables on this series power generator. We take no responsibilities for any damages caused by customers' failure to follow instructions. Doing so will void the warranty.
3. When charging, please place the product on the ground with no flammable or combustible materials around it. To prevent accidents, never leave the product unattended during charging.
4. DO NOT charge the product immediately after a long or heavy load, because the device temperature may become too high. DO NOT charge the device until it cools down to room temperature.

Product Storage and Transportation:

1. Keep the product out of the reach of children. If any child accidentally swallows any parts, please seek medical attention immediately.
2. If a low-battery warning appears, charge the product before storing it. Otherwise, long-term storage may cause damage to the batteries in the product. Batteries in the product will enter hibernation mode if they are depleted and stored for a long time. Recharging the product can bring the battery out of hibernation.
3. DO NOT place the product near a heat source, such as inside a car in direct sunlight, a fire source, or an operating stove.
4. Store the product in dry environments. Please keep it away from water.
5. Make sure no objects can fall on or around the product while it's being stored.
6. Never ship a product with a battery power level higher than 30%.

Product Battery Disposal:

1. Dispose of Station in specific recycling boxes only after a complete discharge. Batteries are hazardous chemicals. Please strictly follow your local regulations regarding the battery disposal and recycling.
2. Dispose of the product if it cannot be powered on after over-discharging.

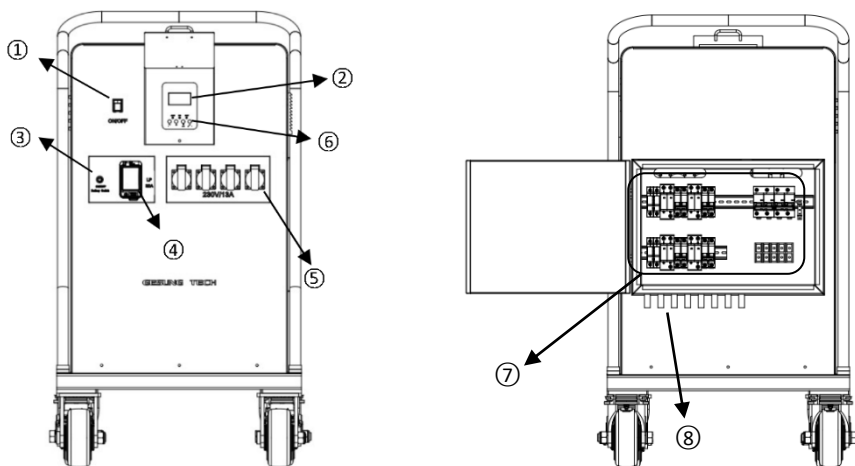
Product Maintenance:

1. Temperature for normal use and storage of this product is -4°F to 104°F (-20°C to 40°C) and temperature for optimal use and storage of this product is 68°F to 77°F (20°C to 25°C).
2. If the product is not used for a long time, the battery life may be reduced. 3. Discharge the Station to 30%, then charge to 85% every 3 months to keep the battery healthy.

Travel Notice:

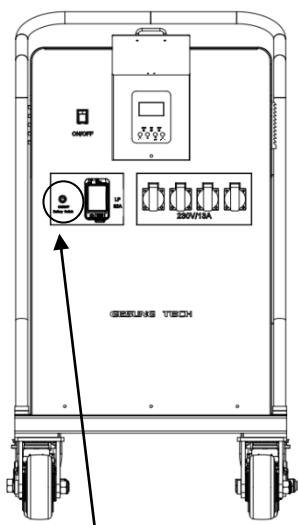
Do not bring this product on flights.

Features of the Power Storage Generator

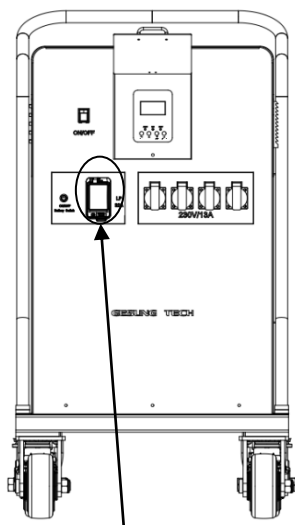


1. Power ON/OFF Button
2. LCD Display
3. Battery Switch
4. Leakage Protection (LP)
5. AC Output Sockets
6. Function Keys
7. Distribution Cabinet
8. MC4

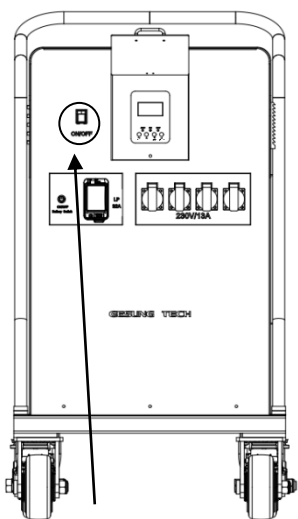
Use a small power load(<7400W)



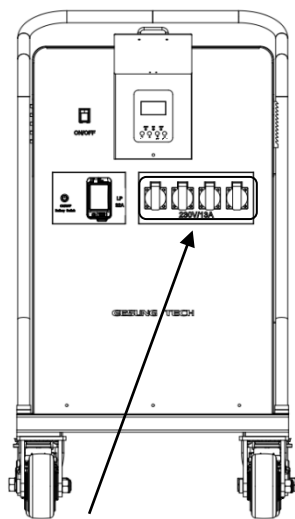
1. Turn on the battery switch



2. Turn on the leakage protection

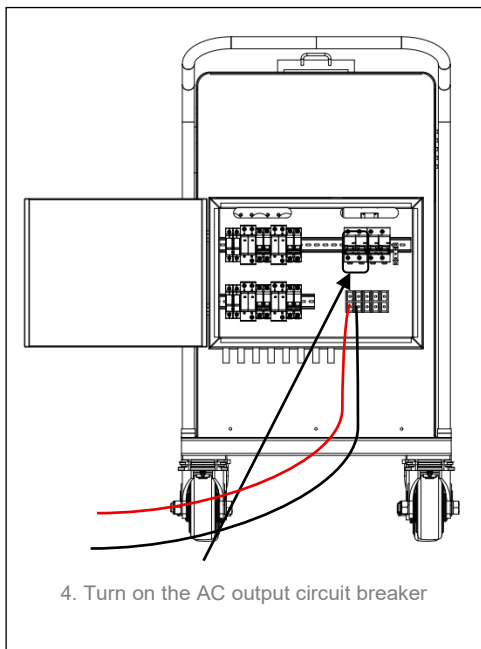
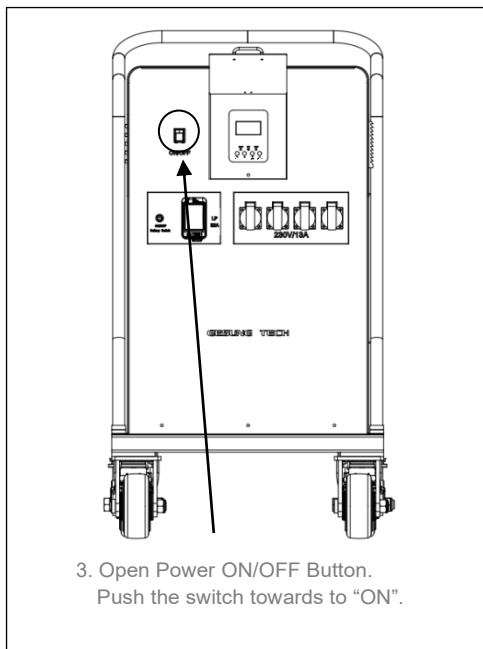
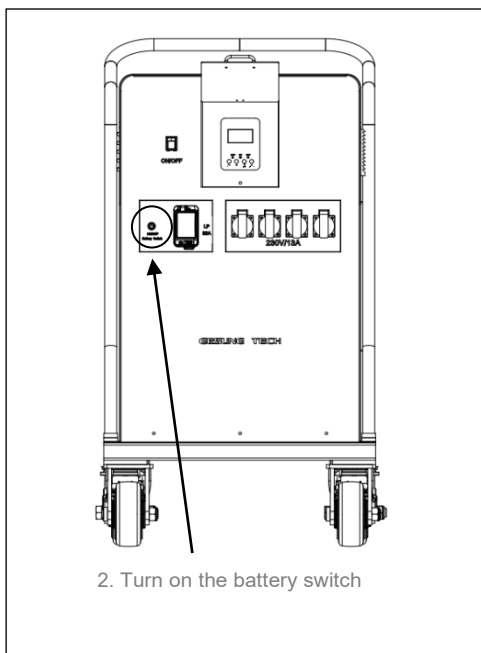
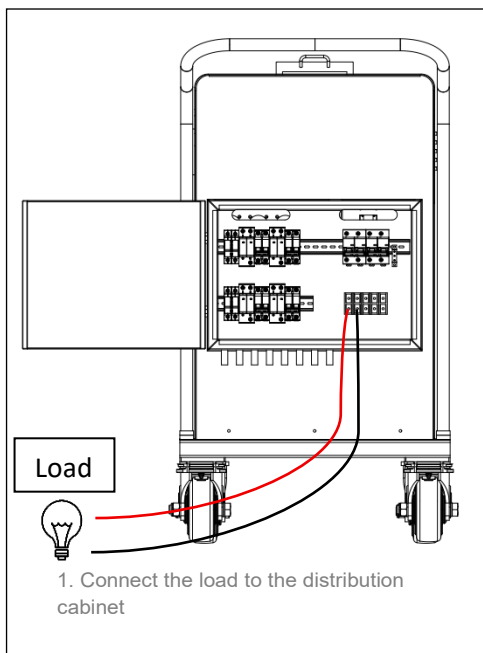


3. Open Power ON/OFF Button.
Push the switch towards to "ON".



4. Plug the load into the socket for use
(The power of a single socket does not
exceed 3000W. The total load does not
exceed 7400W)

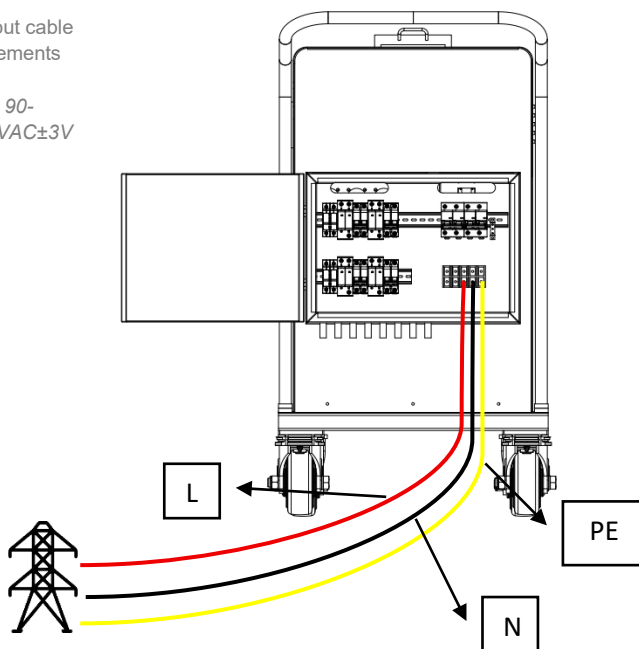
Use high-power loads($\geq 7400\text{W}$)



How to AC Recharge the Power Storage Generator

Please use 4AWG cable as the input cable to meet the current carrying requirements of the input.

The mains input voltage should be 90-280VAC $\pm$ 3V (APL mode), 170-280VAC $\pm$ 3V (UPS mode).



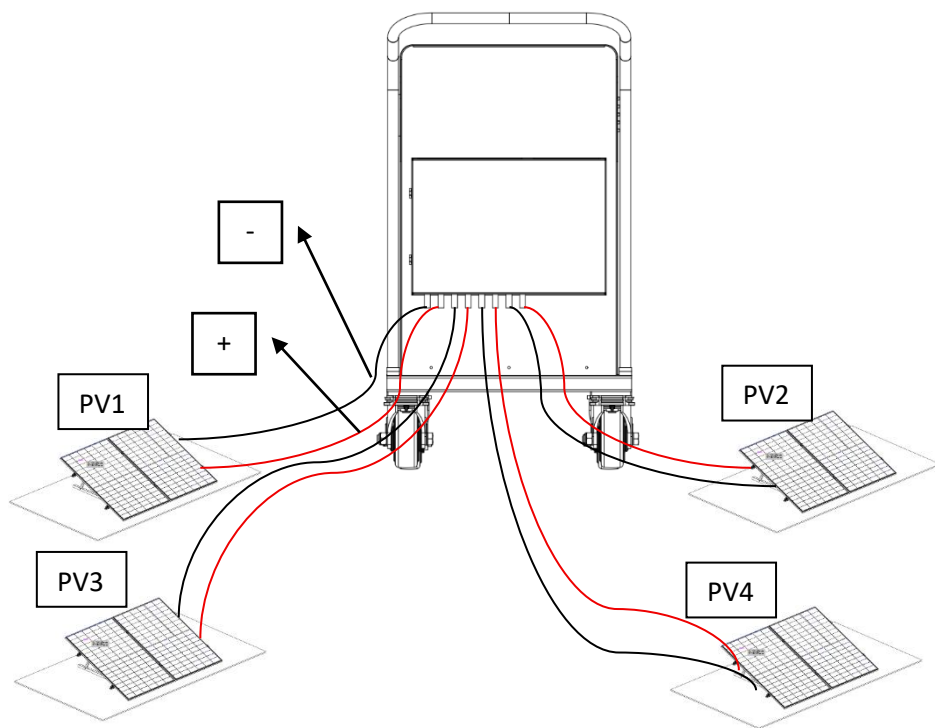
Connecting the DC Solar Panels

The Power Storage Generator can support at 500V DC input. When the input exceeds 500V, the Power Storage Generator overvoltage protection will be activated. Overvoltage may damage the product. Users should read these instructions carefully because any incorrect use of solar panels that leads to product damage will void the warranty.

How to Recharge the Power Storage Generator Using Solar Panels

For full step-by-step instructions about how to connect Power Storage Generator with solar panels, please refer to the **Solar Panel User Guide**.

Recommend Charging Method



The photovoltaic voltage input should be 90~500V.

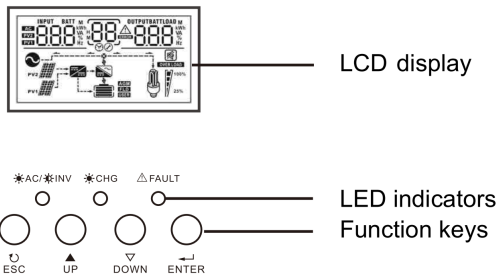
Technical Specifications (GP20K)

General Specs	
Net Weight	390.00kg
Dimensions	L150x W625 xH118cm
Output	
Rated power	20000W
Output Voltage	220/230/240VAC ± 5%
Output Frequency	50/60Hz ± 0.1%
Peak Power	40000VA
Input	
Input Sources	L+N+PE
Rated input Voltage	220/230/240VAC
Voltage Range	90-280VAC ± 3V (APL Mode) 170-280VAC ± 3V (UPS Mode)
Chargers	
PV Charging Mode	MPPT Dual MPPT*2
MAX.PV input power	4*7500W
MPPT tracking range	90~500VDC
MAX.PV Input Voltage	500V
Best voltage	360~430V
PV max input current	27A/27A/27A/27A
MAX.PV charging current	300A
MAX.AC charging current	300A
MAX.Charging current	300A
Battery	
Battery capacity	30kWH
Cell Chemistry	Lithium-ion
Discharge Temperature*	-4°F to 104°F (±5°F), -20°C to 40°C (±3°C)
Charge Temperature*	32°F to 104°F (±5°F), 0 to 40°C (±3°C)
Cycle Life	25 DOD 80%>6000 cycles

* Please Note: The following information has been obtained under supervised test conditions.

Operation and display panel

The operation and display panel shown below is located on the front panel of the generator. It includes three indicator lights, four function keys, and an LCD display that indicates the operating status and input and output power information



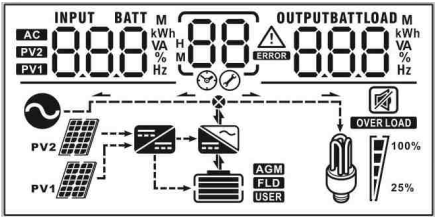
LED Indicator

LED Indicator			Messages
AC/INV	Green	Solid On	Output is powered by utility in Line mode.
		Flashing	Output is powered by battery or PV in battery mode.
CHG	Yellow	Solid On	Battery is fully charged.
		Flashing	Battery is charging.
FAULT	Red	Solid On	Fault occurs in the inverter.
		Flashing	Warning condition occurs in the inverter.

Function Keys

Function Key	Description
ESC	To exit setting mode
UP	To go to previous selection
DOWN	To go to next selection
ENTER	To confirm the selection in setting mode or enter setting mode

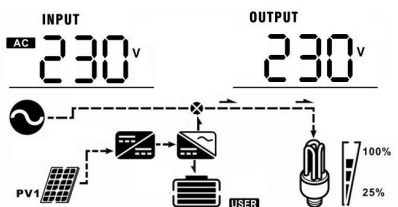
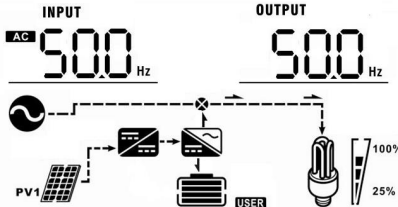
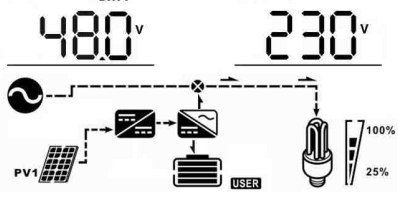
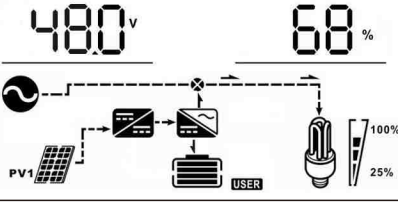
LCD Display Icons



Icon	Function
Input source information	
	Indicates the AC input
	Indicates the 1 st PV panel input
	Indicates the 2 nd PV panel input
	Indicate input voltage, input frequency, battery voltage, PV1 voltage, PV2 voltage, charger current
Middle digital display information	
	Indicates the setting programs.
	Indicates the warning and fault codes. Warning: Flashing  with warning code Fault: display  with fault code
Right digital display information	
	Indicate the output voltage, output frequency, load percent, load VA, load W, PV1 charger power, PV2 charger power, DC discharging current.
	Indicates battery level by 0-24%, 25-49%, 50-74% and 75-100% and charging status.
	Indicates the battery type: AGM, Flooded or User-defined battery.
Load information	
	Indicates overload.
	Indicates the load level by 0-24%, 25-50%, 50-74%, and 75-100%.
	0%~25% 25%~50% 50%~75% 75%~100%
	   
Mode operation information	
	Indicates unit connects to the mains.
	Indicates unit connects to the 1 st PV panel
	Indicates the solar charger is working
	Indicates the DC/AC inverter circuit is working.
Mute operation	
	Indicates unit alarm is disabled.

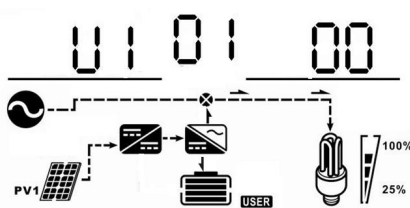
Display Setting

The LCD display information will be switched in turns by pressing "UP" or "DOWN" key. The selectable information is switched as below order: input voltage, input frequency, PV voltage, charging current, battery voltage, output voltage, output frequency, load percentage, load in Watt, load in VA, load in Watt, DC discharging current, main board firmware version and SCC firmware version.

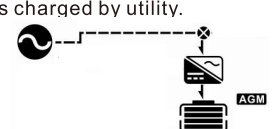
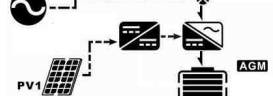
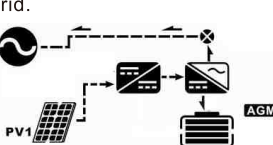
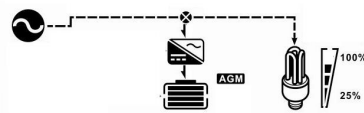
Select item	LCD display
Input voltage and output voltage (Default Display Screen)	Input Voltage=230V, output voltage=230V 
Input frequency and output frequency	Input frequency=50.0Hz, output frequency=50.0Hz 
Battery voltage and output voltage	Battery Voltage=48.0V, output voltage=230V 
Battery voltage and load percentage	Battery Voltage=48.0V, load percentage 68% 

Battery voltage and load in VA	Battery Voltage=48.0V, load in VA=1.08kVA
Battery voltage and load in Watt	Battery Voltage=48.0V, load in Watt=1.88kW
PV1 voltage and PV1 charger power	PV1 Voltage=360V, charging power=1.58kW
Charger current and DC discharging current	Charging current=30A, discharging current=0A
PV energy generated today	Today energy = 6.3kWh

PV energy generated this month	This month energy = 358kWh.
PV energy generated this year	This year energy = 8.32MWh
PV energy generated totally	Total energy = 13.9MWh
Real date	Real date Nov 28, 2016.
Real time	Real time 13: 20.

Main board firmware version	Version 00001.00 
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Operating Mode Description

Operating mode	Behaviors	LCD display
Standby mode Note: *Standby mode: The inverter is not turned on yet but at this time, the inverter can charge battery without AC output. *Power swing mode: If enabled, the output of inverter will be off when connected load is pretty low or not detected.	No output power, solar or utility charger available	Battery is charged by utility. 
		Battery is charged by PV energy. 
		Battery is charged by utility and PV energy. 
		Battery is charged by PV energy and feed PV energy grid. 
		No charging. 
Line mode	Output power from utility. Charger available	Utility charges battery and provides power to load. 
		Utility and battery power provide power to load. 

PV energy generated this month	This month energy = 358kWh.
PV energy generated this year	This year energy = 8.32MWh
PV energy generated totally	Total energy = 13.9MWh
Real date	Real date Nov 28, 2016.
Real time	Real time 13: 20.

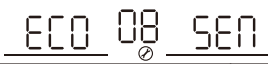
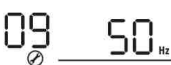
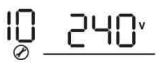
5.3 LCD Setting

After pressing and holding ENTER button for 3 seconds, the unit will enter setting mode. Press "UP" or "DOWN" button to select setting programs. And then, press "ENTER" button to confirm the selection or ESC button exit.

Setting Programs:

Program	Description	Selectable option	
00	Exit setting mode	Escape 	
01	Output source priority selection		Solar energy provides power to the loads as first priority. If solar energy is not sufficient to power all connected loads, Utility energy will supply power to the loads at the same time.
			Solar energy provides power to the loads as first priority. If solar energy is not sufficient to power all connected loads, battery energy will supply power to the loads at the same time. Utility provides power to the loads only when battery voltage drops to either low-level warning voltage or the setting point in program 12 or solar and battery is not sufficient.
02	Maximum charging current: To configure total charging current for solar and utility chargers. (Max. charging current = utility charging current + solar charging current)	60A(default) 	Setting range is from 10A to maximum charging current. Increment of each click is 10A.
03	AC input voltage range	Appliances (default) 	If selected, acceptable AC input voltage range will be within 90-280VAC.
		UPS 	If selected, acceptable AC input voltage range will be within 170-280VAC.

05	Battery type	AGM (default) 	Flooded 
		User-Defined 	If "User-Defined" is selected, battery charge voltage, low DC cut-off voltage and dual cut -off voltage can be set up in program 24,26,27,29 and 61.
		LIA-protocol compatible battery 	If selected, programs of 24,26,27 and 29 will be automatically set up. No need for further setting.
		Pylontech battery 	
		Techfine battery 	
		Growatt battery 	
		LIB-protocol compatible battery 	Select "LIB if using Lithium battery compatible to Lib protocol. If selected, programs of 26,27 and 29 will be automatically se up. No need for further setting.
		3 rd party lithium battery 	If selected, programs of 26,27 and 29 will be automatically set up. No need for further setting. Please contact the battery supplier for installation procedure.
06	Auto restart when overload occurs	Restart disable(default) 	Restart enable 
07	Auto restart when over temperature occurs	Restart disable (default) 	Restart enable 

08	ECO function: System will temporarily stop when the load is low in battery mode.	disable (default) 	
		enable 	
09	Output frequency	50Hz(default) 	60Hz 
		220V 	230V (default) 
10	Output voltage	240V 	
11	Maximum utility charging current Note: If setting value in program 02 is smaller than that in program in 11, the inverter will apply charging current from program 02 for utility charger.	30A(default) 	Setting range is 2A, then from 10A to max.AC charging current. Increment of each click is 10A.
12	Setting voltage point back to utility source when selecting“SBU priority” in program 01.	Available options in 24 system model:	
		23.0V (default) 	Setting range is from 22V to 25.5V. Increment of each click is 0.5V.
		Available options in 48 system model:	
		46V (default) 	Setting range is from 44V to 51V. Increment of each click is 1V.
13	Setting voltage point back to battery mode when selecting“SBU priority”in program 01.	Available options in 24 system model:	
		Battery fully charged 	27V(default) 
		Setting range is from 24V to 29V. Increment of each click is 0.5V.	
		Available options in 48 system model:	
		Battery fully charged 	54V (default) 
		Setting range is from 48V to 58V. Increment of each click is 1V.	

16	Charger source priorit: To configure charger source priority	If this inverter/charger is working in Line, Standby or Fault mode,charger source can be programmed as below:	
		Solar first 16 C50	Solar energy will charge battery as first priority. Utility will charge battery only when solar energy is not available.
		Solar and Utility(default) 16 SNU	Solar energy and utility will charge battery at the same time.
		Only Solar 16 050	Solar energy will be the only charger source no matter utility is available or not.
		If this inverter/charger is working in Battery mode, only solar energy can charge battery. Solar energy will charge battery if it's available and sufficient.	
18	Alarm control	Alarm on (default) 18 60N	Alarm off 18 60F
19	Auto return to default display screen	Return to default display screen (default) 19 ESP	If selected, no matter how users switch display screen, it will automatically return to default display screen (Input voltage /output voltage) after no button is pressed for 1 minute.
		Stay at latest screen 19 LEP	If selected, the display screen will stay at latest screen user finally switches.
20	Backlight control	Backlight on (default) 20 LON	Backlight off 20 LOF
22	Beeps while primary source is interrupted	Alarm on (default) 22 AON	Alarm off 22 AOF
23	Overload bypass: When enabled, the unit will transfer to line mode if overload occurs in battery mode.	Bypass disable (default) 23 bYd	Bypass enable 23 bYE
24	Battery low voltage ● If battery power is only power source available inverter will alarm.	Battery low voltage 44.0V LOV 24 44.0V ^{BATT}	
		Setting range is from 20.0V-27.0V for 24V system and 40.0V-54.0V for 48V system.	

25	Record fault code	Record enable (default) 25 FEN	Record disable 25 FdS
26	Bulk charging voltage (C.V voltage)	24V system default setting:28.2V CU 26 ^{BATT} 28.2 ^v	
		48V system default setting:56.4V CU 26 ^{BATT} 56.4 ^v	
		If self-defined is selected in program 5,this program can be set up. Setting range is from 24.0V to 30.0V for 24V system and 48.0V to 60.0V for 48V system. Increment of each click is 0.1V.	
27	Floating charging voltage	24V system default setting:27.0V FLU 27 ^{BATT} 27.0 ^v	
		48V system default setting:54.0V FLU 27 ^{BATT} 54.0 ^v	
28	Reset factory setting	default: Std 28 OFF	
		48V system default setting:54.0V Std 28 ON	
29	Low DC cut-off voltage: • If battery power is only power source available inverter will shut down. • If PV energy and battery power are available, inverter will charge battery without AC output.	24V system default setting:21.0V COU 29 ^{BATT} 21.0 ^v	
		48V system default setting:42.0V COU 29 ^{BATT} 42.0 ^v	
		If self-defined is selected in program 5, this program can be set up. Setting range is from 20.0V to 26.0V for 24V system and 40.0V to 52.0V for 48V system. Increment of e	

30	Battery equalization	Battery equalization 30 EEN	Battery equalization disable (default) 30 EdS
		If "Flooded" or "User Defined" is selected in program 05, this program can be set up.	
31	Battery equalization voltage	24V system default setting: 29.2V EV 31 ^{BATT} 29.2V	
		48V system default setting: 58.4V EV 31 ^{BATT} 58.4V	
		Setting range is from 24.0V to 30.0V for 24V system and 48.0V to 60.0V for 48V system. Increment of each click is 0.1V.	
33	Battery equalized time	60min (default) 33 60	Setting range is from 5min to 900min. Increment of each click is 5min.
34	Battery equalized timeout	120min (default) 34 120	Setting range is from 5min to 900min. Increment of each click is 5min.
35	Equalization interval	30days (default) 35 30d	Setting range is from 0 to 90 days. Increment of each click is 1 day.
36	Equalization activated immediately	Enable 36 AEN	Disable (default) 36 AdS
		If equalization function is enabled in program 30, this program can be set up. If "Enable" is selected in this program, it's to activate battery equalization immediately and LCD main page will show "EQ". If "Disable" is selected, it will cancel equalization function until next activated equalization time arrives based on program 35 setting. At this time, "EQ" will not be shown in LCD main page.	
37	BMS Function Switch	off(default) bns 37 OFF	Whether to enable the BMS communication function
		bns 37 ON	

38	Bat Soc Under Lock		If any type of lithium battery is selected in program 5. BMS low voltage SOC value, if the BMS SOC value is lower than the set value, the inverter will shut down to protect the battery.
39	Bat Soc Turn To Ac		If any type of lithium battery is selected in program 5. When the working mode of the inverter is set to the battery priority mode, the inverter will be forced to enter the mains charging when the SOC of the BMS is lower than the set value.
40	Bat Soc Turn To Dc		If any type of lithium battery is selected in program 5. When the working mode of the inverter is set to the battery priority mode, the inverter resumes the DC working mode when the SOC of the BMS is higher than the set value.
41	Bat Restart Soc		If any type of lithium battery is selected in program 5. When the inverter is turned on, the SOC must be higher than the set value to work normally.
43	Solar supply priority		Solar energy provides power to charge battery as first priority.
			Solar energy provides power to the loads as first priority.
44	Solar energy feed to grid configuration		Solar energy feed to grid disable.
			Solar energy feed to grid enable.
45	Reset PV energy storage	Notre set (Default) 	Reset
46	Start charging time for AC charger	00:00(Default) The setting range of start charging time for AC charger is from 00:00 to 23:00, increment of each click is 1 hour.	
47	Stop charging time for AC charger	00: 00(Default) 	

48	Scheduled time for AC output on	00: 00(Default)  The setting range of scheduled Time for AC output off is from 00: 00 to 23:00, increment of each click is 1 hour.	
49	Scheduled time for AC output off	00: 00(Default)  The setting range of scheduled Time for AC output off is from 00: 00 to 23:00, increment of each click is 1 hour.	
50	Set country customized regulations	Mode 1 	If selected, acceptable feed-in grid voltage range will be 195.5-253VAC. Acceptable feed-in grid frequency range will be 49-51Hz.
		Mode 2 	If selected, acceptable feed-in grid voltage range will be 184-264.5VAC. Acceptable feed-in grid frequency range will be 47.5-51.5Hz.
		Mode 3 	If selected, acceptable feed-in grid voltage range will be 184-264.5VAC. Acceptable feed-in grid frequency range will be 57-62Hz.
		Mode 4(Default) 	If selected, acceptable feed-in grid voltage range will be 170-264.5VAC. Acceptable feed-in grid frequency range will be 47.5-51.5Hz.
51	Time setting-Minute	 For minute setting, the range is from 00 to 59.	
52	Time setting-Hour	 For hour setting, the range is from 00 to 23.	
53	Time setting-Day	 For day setting, the range is from 00 to 31.	
54	Time setting-Month	 For month setting, the range is from 1 to 12	
55	Time setting-Year	 For year setting, the range is from 16 to 99.	
56	GRID-tie current	^{10A} 	Increment of each click is 1A.

57	External CT Function	default 57 <u>CTD</u> 57 <u>CTE</u>	Whether to enable the External CT Function
58	Set the input power of the mains power	150W(default) 2EP 58 <u>150</u> ^W	Setting range is from 10W to 500w. Increment of each click is 10W.
60	Dual output	Disable(default) 60 <u>L2F</u>	Use 60 <u>L2O</u>
61	Enter the dual output functional voltage point	Default setting:44.0V 60d <u>61</u> <u>440</u>^V Default setting:22.0V 60d <u>61</u> <u>220</u>^V If battery voltage lower than inverter setting, second output will be cutted of, Increment of each click is 0.1V.	
62	Enter the dual output functional SOC point	65d <u>62</u> <u>15</u> [%]	If any type of lithium battery is selected in program 5. If BMS capacity lower than SOC setting, second output will be cutted of.
63	Dual battery voltage receiver	60r <u>63</u> <u>520</u> ^V	Default 52V/26V,if the battery voltage is higher than the inverter setting, the dual will be restored.
64	Dual battery SOC Receiver	65r <u>64</u> <u>95</u> [%]	If any type of lithium battery is selected in program 5. Default 50%,if the BMS capacity is higher than the SOC setting, the second output will be restored.
65	Setting discharge time on the second output	Disable(default) ddt <u>65</u> <u>dd5</u>	Setting range is disable and then from 0 min to 990 min. Increment of each dick is 5 min. *If the battery discharge time achieves the setting time in program 61 and the program 60 function is not triggered, the output will be turned off.
66	Dual Recover Delay Time	dt-d <u>66</u> <u>5</u> dt-d <u>66</u> <u>dd5</u>	The value ranges from 0-60min.

Fault and alarm description

Faults Descriptions

- **Fault:** The inverter enters the fault mode, the red LED light is always on and the LCD displays the fault code.

Fault Reference Code

Fault Code	Fault Event	Icon on
01	Fan is locked when inverter is off.	
02	Over temperature or NTC is not connected well.	
03	Battery voltage is too high.	
04	Battery voltage is too low.	
05	Output short circuited or over temperature is detected by internal converter components.	
06	Output voltage is too high.	
07	Over load time out.	
08	Bus voltage is too high	
09	Bus soft start failed	
51	Over currents or surge	
52	Bus voltage is too low	
53	Inverter soft start failed	
55	Over DC voltage in AC output	
57	Current sensor failed	
58	Output voltage is too low	
59	PV voltage is over limitation	

Alarm Descriptions

➤ **Alarm:** The red LED flashes, and the LCD displays an alarm code, the inverter does not enter the failure mode

Alarm Indicator

Alarm Code	Alarm Event	Audible Alarm	Icon flashing
01	Fan is locked when inverter is on.	Beep three times every second	
02	Over temperature	None	
03	Battery is over-charged	Beep once every second	
04	Low battery	Beep once every second	
07	Overload	Beep once every 0.5 second	
10	Output power derating	Beep twice every 3 seconds	
15	PV energy is low.	Beep twice every 3 seconds	
16	High AC input (>280VAC) during BUS soft start	None	
E9	Battery equalization	None	
bP	Battery is not connected	None	

Code Reference

Related information code will be displayed on LCD screen. Please check inverter LCD screen for the operation.

Code	Description
60	If battery status is not allowed to charge and discharge after the communication between the inverter and battery is successful, it will show code 60 to stop charging and discharging battery.
61	Communication lost - After battery is connected, communication signal is not detected for 1 minutes, buzzer will beep. - Communication lost occurs after the inverter and battery is connected successfully, buzzer beeps immediately.
69	If battery status is not allowed to charge after the communication between the inverter and battery is successful, it will show code 69 to stop charging battery.
70	If battery status must to charge after the communication between the inverter and battery is successful, it will show code 70 to charge battery.
71	If battery status is not allowed to discharge after the communication between the inverter and battery is successful, it will show code 71 to stop discharge battery.

Trouble removal

Problem	LCD/LED/Buzzer	Explanation/Possible cause	What to do
Unit shuts down automatically during startup process.	LCD/LEDs and buzzer will be active for 3 seconds and then complete off.	The battery voltage is too low (<1.91V/Cell)	1. Re-charge battery. 2. Replace battery.
No response after power on.	No indication	1. The battery voltage is far too low.(<1.4V/Cell) 2. Internal fuse tripped.	1.Contact repair center for replacing the fuse. 2. Re-charge battery. 3. Replace battery. Check if AC breaker is tripped and AC wiring is connected well.
Mains exist but the unit works in battery mode.	Input voltage is displayed as 0 on the LCD and green LED is flashing.	Input protector is tripped	
	Green LED is flashing	Insufficient quality of AC power. (Shore or Generator)	1. Check if AC wires are too thin and/or too long. 2. Check if generator (if applied)is working well or if input voltage range setting is correct. (UP-->sppliance)
	Green LED is flashing.	Set "Solar First" as the priority of output source.	Change output source priority to Utility first.
When the unit is turned on, internal relay is switched on and off repeatedly.	LCD display and LEDs are flashing	Battery is disconnected.	Check if battery wires are connected well.
Buzzer beeps continuously and red LED is on.	Fault code 07	Overload error. The inverter is overload 105% and time is up.	Reduce the connected load by switching off some equipment.
		If PV input voltage is higher than specification, the output power will be derated. At this time, if connected loads is higher than derated output power, it will cause overload.	Reduce the number of PV modules in series or the connected load.
	Fault code 05	Output short circuited.	Check if wiring is connected well and remove abnormal load.
		Temperature internal converter component is over 120°C.	Check whether the air flow of the unit is blocked or whether the ambient temperature is too high.
	Fault code 02	Internal temperature of inverter component is over 100°C	
	Fault code 03	Battery is over-charged	Return to repair center.
		The battery voltage is too high.	Check if spec and quantity of batteries are meet requirements.
	Fault code 01	Fan fault	Replace the fan.
	Fault code 06/58	Output abnormal (Inverter voltage below than 190Vac or is higher than 260Vac)	1. Reduce the connected load. 2. Return to repair center
	Fault code 08/09/53/57	Internal components failed.	Return to repair center.
	Fault code 51	Over current or surge.	Restart the unit, if the error happens again, please return to repair center.
	Fault code 52	Bus voltage is too low.	
	Fault code 55	Output voltage is unbalanced.	
	Fault code 59	PV input voltage is beyond the specification.	Reduce the number of PV modules in series.

Power Storage Generator FAQ

How to Clean Power Storage Generator?

Power Storage Generator(Hereinafter referred to as products) is a versatile, durable generator that can be used in many types of applications. You can clean using a dry, non-abrasive cloth. Use detergent that is used for cleaning mobile phones and computer screens if you need to clean products more thoroughly. DO NOT expose products to excessive amounts of liquid, as doing so can damage the product or result in injury.

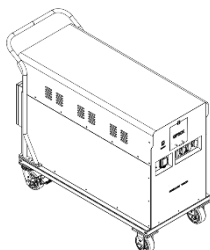
How to Store Power Storage Generator?

Please products in a dry and cool environment, away from any abrasive objects. DO NOT store or place products near water. Please turn off the products and store it within its recommended use and storage temperature range. If you need to store the products for a long time, please discharge the products to 30%, then charge it to 80% every 3 months.

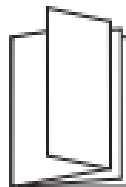
How to Use Power Storage Generator Safely?

Please use products in its recommended operating temperature range. Using products out of the recommended operating temperature range may cause the power station to exceed safe and effective working limits. Products is not waterproof. DO NOT immerse products in water. Doing so will void the warranty. If products is used to power electrical devices with heating elements for over 30 minutes, such as a hairdryer, the power station may enter a high-temperature protection mode.

Packing List



Power Storage Generator



User Manual and Warranty Card

Revision record:

GP20K V2-202510