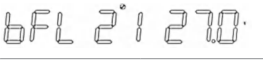
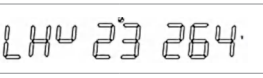
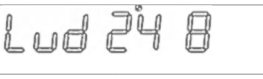
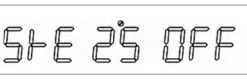
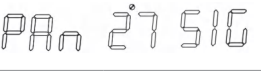
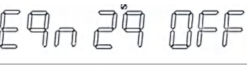
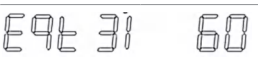
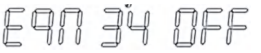
14	Silent mode setting		
		Enable/disable buzzer sound. The default setting is OFF. When set to ON, in any situation such as alarms or faults, the buzzer will not sound. This setting can be applied to all modes .	
15	Battery return to mains voltage point		
		When the battery is set to the CUS (Customer Setting Type) mode. The adjustable range is [22, 26V]. .	
		When the battery is set to the AGM (Lead Acid Battery Type) or FLD (Flooded Battery Type) mode. The default setting is 23V, and it can be adjusted within a range of [22, 26V].	
		When the battery is set to the LIB (Lithium Battery Type) mode. The default is 23.8V, and it can be adjusted within a range of [20, 25V].	
16	Switching back to battery mode voltage points		
		When the battery is set to CUS (Customer Set Type) mode, The default setting is 26V, The voltage range is [24, 29V].	
		When the battery is set to AGM (Absorbent Glass Mat) or FLD (Flooded) mode,The default is 26V. It can be adjusted within a range of [24, 29V].	
		When the battery is set to LIB (Lithium Battery) mode, The default setting is 27V. It can be adjusted within a range of [23, 28.5V].	
17	Battery type	AGM (default)	
		Flooded	
		Lithium	
		User-Defined	

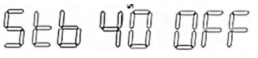
18	Battery low voltage point	
		It is not possible to set the battery definition mode to AGM or FLD mode. The initial default setting is 22V. When the battery type is set to CUS, the adjustable range for the battery voltage is [21, 27V].
		Battery low voltage alarm setting. When the battery type is set to LIB, the default setting is 23.8V. The adjustable range for the voltage is [20.6, 25V].
19	Battery shutdown voltage point	
		The battery low voltage shutdown point setting function cannot be adjusted when the battery is defined as AGM or FLD mode. The default setting is 21V. When the battery type is set to CUS, the default setting is 21V. The adjustable range for the voltage is [20, 24V].
		When the battery type is set to LIB , the battery shutdown point can be modified. The default setting is 23V, and the adjustable range is [20, 24V].
20	Constant voltage mode voltage point setting	
		When the battery is defined in AGM or FLD mode, the voltage set point cannot be configured. The default setting for AGM mode is 28.2V, for FLD mode is 29V. When the battery type is CUS, It can be set within the range of [24, 29V] for the constant voltage charging set point. It is important to note that the constant voltage set point voltage needs to be higher than the float charge set point voltage.
		When the battery type is set to LIB, the default constant voltage charging set point is 28.2V, and it can be adjusted within the range of [25, 29V]. It is important to ensure that the constant voltage set point voltage is higher than the float charge set point voltage.
21	Floating charge mode voltage point setting	
		When the battery is defined in AGM or FLD mode, the voltage set point cannot be configured. The default setting for AGM/FLD mode is 27V When the battery type is CUS, It can be set within the range of [26.6, 27.8V] for the floating charging voltage set point. If the battery type is LIB, the default setting for the floating charging point is 27.6V The setting range is between 24V and 28V. It is important to note that the constant voltage point voltage should always be set higher than the floating charge point voltage.

22	Grid low voltage point setting	
		If output mode is APP/GEN, Grid low voltage point can be set within a range of 90V to 154V. The default setting is 154V.
		If output mode is UPS, Grid low voltage point can be set within a range of 170V to 200V. The default setting is 185V.
23	Grid high voltage point setting	
		If output mode is APP/GEN, Grid high voltage point can be set within a range of 264V to 280V. The default setting is 264V.
		If output mode is UPS, Grid high voltage point is set as 264V.
24	Low power discharge time setting	
		When in battery mode and operating under a low load, unrestricted discharge for an extended period can deplete the battery, affecting its lifespan. When the inverter reaches the set low power discharge time, the low voltage shutdown point will be raised to 22V. The default low power discharge time is 8 (8 hours), adjustable range [1, 8]. In inverter mode,the low power discharge time setting,the default is 8(8 hours),the setting range is [1, 8].
		In battery mode, after the continuous discharge time exceeds 8 hours and the battery shutdown point has not been reached, the battery voltage shutdown point will be modified to 22V, and the system will alarm for 1 minute when the battery continues to discharge to 22V. Then shut down again.When the battery voltage exceeds 26.4V exceeds 30s, the battery discharge time will be reset..

25	Inverter soft start setting	 Default setting is OFF. If it set to ON, the inverter output gradually increases from 0 to the target voltage value. If OFF, the inverter output directly increases from 0 to the target voltage value. Setting Condition: It can be set in single-machine operation mode.
26	Reset factory setting	 Restore all settings to factory default values. Before the setting, this interface is displayed as OFF. When set to ON, the system will restore to default settings. After the setting is completed, this interface will display OFF again. The setting can be applied immediately in mains and standby modes, but cannot be set in battery mode.
27	Parallel operation mode	 Not Applicable for this model.
28	Battery Disconnection Alarm	 Enable/Disable battery disconnection alarm. Default setting is OFF.When set to OFF, there will be no battery disconnection, low battery voltage, or battery under voltage alarms when the battery is disconnected.
29	Battery Equalization Mode	 Enable/Disable Battery equalization. Default setting is OFF. If it is set to ON, the controller will start to enter the equalization phase when the set equalization interval (battery equalization period) is reached during the float charging stage, or the equalization is activated immediately.

30	Equalization Voltage Point Setting	 The default setting is 29.2V, with a configurable range of [25,31.5V].
31	Equalization Charging Time Setting	 During the equalization stage, the controller will charge the battery as much as possible until the battery voltage rises to the battery equalization voltage. Then, it will adopt constant voltage regulation to maintain the battery voltage. The battery will remain in the equalization stage until the set battery equalization time is reached. The default setting is 60 minutes, with a configurable range of [5, 900], and an increment of 5 minutes for each setting.
32	Equalization Delay Time Setting	 During the equalization stage, if the battery equalization time expires and the battery voltage has not risen to the battery equalization voltage point, the charging controller will extend the battery equalization time until the battery voltage reaches the battery equalization voltage. When the battery equalization delay setting is completed and the battery voltage is still below the battery equalization voltage, the charging controller will stop equalization and return to the floating stage. The default setting is 120 minutes, with a configurable range of [5, 900], and an increment of 5 minutes for each setting.
33	Equalization Interval Time Setting	 When the battery connection is detected during the float phase with the equalization mode turned on, the controller will start to enter the equalization phase when the set equalization interval (cell equalization period)is reached.The default setting is 30 days, the settable range is[1,90], and the increment of each setting is 1 day.

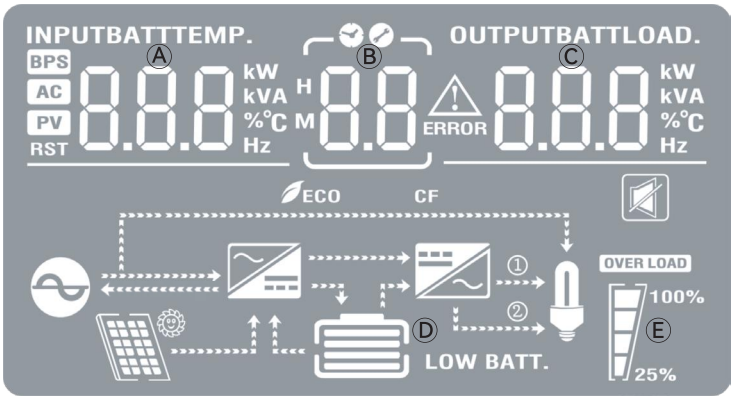
34	Enable Equalization Immediately	 The default setting is OFF, the function is not turned on; when it is set to ON, in the float charging stage when the equalization mode is turned on and the battery connection is detected. The balance charging is activated immediately, and the controller will start to enter the equalization stage.
35	Grid-tie inverter function	 Set whether the inverter should feed power to the grid in PV priority grid mode or PBG grid mode. The default setting is OFF, and the function is not enabled. When set to ON, the inverter tracks the maximum power point, and the excess energy is fed into the mains. After the function is turned on, if a communication abnormality occurs, an alarm 56 is generated, and the inverter no longer determines the operation logic according to the BMS information.
36	Battery dual output low voltage shutdown point	 Not Applicable for this model.
37	Battery dual output duration	 Not Applicable for this model.
38	BMS Communication Function	 Enable/Disable lithium battery communicates with inverter. Default setting is OFF.Choose the corresponding option based on the battery pack type.if a communication abnormality occurs, alarm 56 is generated .

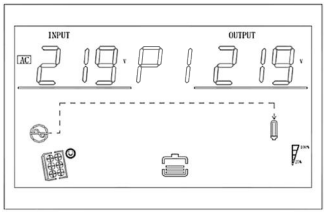
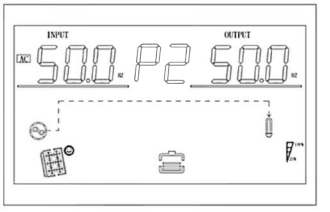
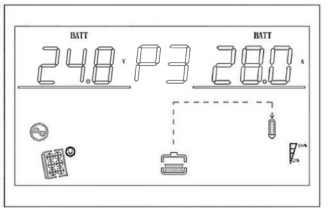
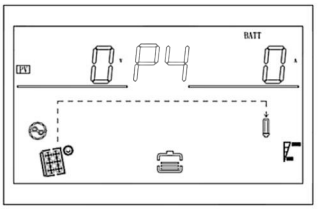
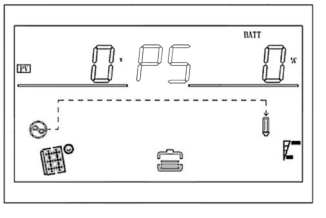
39	Low SOC Shutdown	 Set the inverter to shut down when the State of Charge (SOC) of the battery is low. Default setting is 20, with a configurable range of [5, 50]. When the lithium battery SOC reaches the set value in battery mode, the inverter shuts down and generates alarm 68. The alarm 68 is cleared when the SOC returns to the set value + 5%. In standby mode, the inverter can switch to battery mode only when the SOC reaches the set value + 10%. If it does not reach this threshold, alarm 69 is generated. Once the function is enabled, alarm 69 is triggered when the lithium battery SOC reaches the set value + 5%, and it is cleared when it returns to the set value + 10%. It can be set to OFF, in which case the inverter no longer performs shutdown, startup, or alarm operations based on the SOC condition. Once the function is enabled, if a communication abnormality occurs, the inverter no longer operates based on the SOC information and clears the related alarms.
40	High SOC to Battery	 Set the SOC value for the inverter to switch to battery mode. Default setting is 95, with a configurable range of [10, 100]. In PBG priority mode, when the lithium battery SOC reaches the set value in normal grid mode, the inverter switches to battery mode. Once enabled, the inverter will only switch to battery mode when the SOC is above the set point and the battery voltage is higher than the voltage point to switch back to battery mode It can be set to OFF, in which case the inverter no longer switches from grid mode to battery mode based on the SOC condition. Once the function is enabled, if a communication abnormality occurs, the inverter no longer operates based on the SOC information and clears the related alarms.

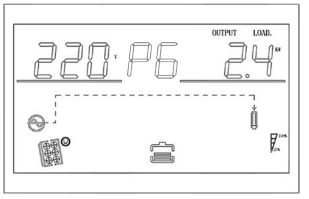
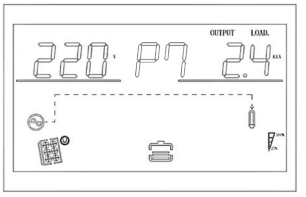
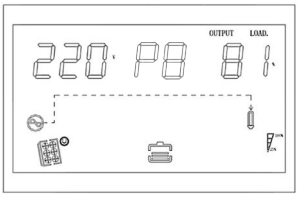
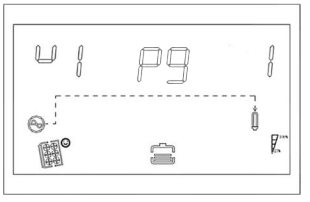
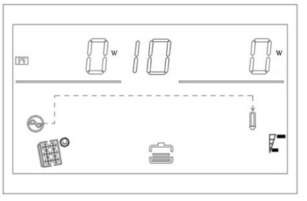
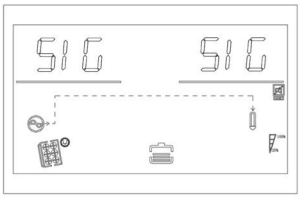
41	Low SOC to Grid	StG 41 OFF Set the SOC value for the inverter to switch to grid mode. The default setting is 50, with a configurable range of [10, 90]. In PBG priority mode, when the lithium battery SOC reaches the set value in battery mode, the inverter switches to grid mode. Once enabled, the inverter will switch to grid mode when the SOC is below the set point or the battery voltage is lower than the voltage point to switch back to grid mode It can be set to OFF, in which case the inverter no longer switches from battery mode to grid mode based on the SOC condition. Once the function is enabled, if a communication abnormality occurs, the inverter no longer operates based on the SOC information and clears the related alarms. When this setting is higher than the STB point, STB and STG will no longer take effect after the next activation.

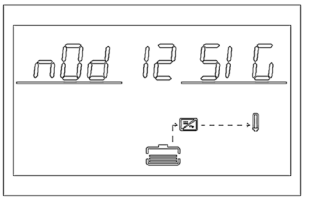
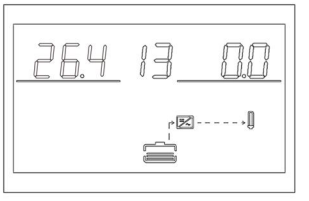
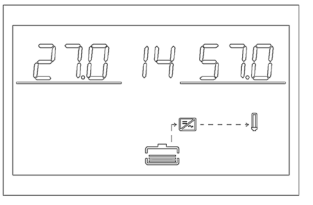
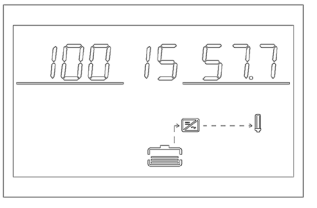
4.3 Display Information

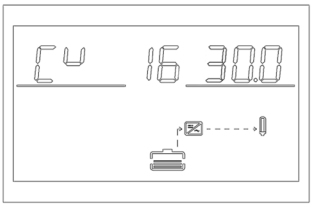
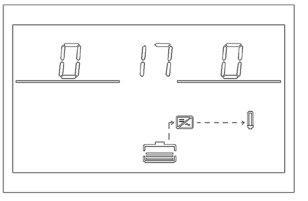
The LCD display information will be switched in turns by pressing “UP” or “DOWN” key.
The selectable information is switched as below order: voltage, frequency, current, power, firmware version.



Information	LCD display
Ⓐ AC Input voltage Ⓑ Alarm or Fault code (Default Display Screen) Ⓒ Output voltage Ⓓ Battery capacity Ⓔ Load percentage	
Ⓐ AC Input frequency Ⓑ Alarm or Fault code Ⓒ Output frequency Ⓓ Battery capacity Ⓔ Load percentage	
Ⓐ Battery voltage Ⓑ Alarm or Fault code Ⓒ Output current Ⓓ Battery capacity Ⓔ Load percentage	
Ⓐ PV voltage Ⓑ Alarm or Fault code Ⓒ PV charging current Ⓓ Battery capacity Ⓔ Load percentage	
Ⓐ PV voltage Ⓑ Alarm or Fault code Ⓒ PV power Ⓓ Battery capacity Ⓔ Load percentage	

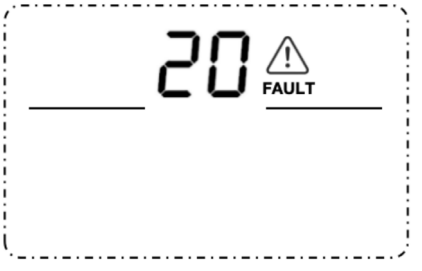
Ⓐ Output voltage Ⓑ Alarm or Fault code Ⓒ active power output Ⓓ Battery capacity Ⓔ Load percentage	
Ⓐ Ⓑ Output voltage Ⓒ Alarm or Fault code Ⓓ complex power output Ⓔ Battery capacity Load percentage	
Ⓐ Ⓑ Output voltage Ⓒ Alarm or Fault code Ⓓ load percentage Ⓔ Battery capacity Load percentage	
Display software version	
Display photovoltaic power generation	
Parallel operation status	

After enabling BMS, the following pages are available	
Network status of lithium battery When the upper right display shows SIG constant, the battery pack is operating as a single group; When it shows PAR constant, the battery pack is operating in multiple groups in series and parallel; When it flashes PAR, the battery pack is establishing a state of multiple groups in series and parallel	
Lithium battery voltage and current information; The upper left displays BMS battery voltage information; The upper right displays BMS battery current information. When BMS communication fails, both the upper left and upper right displays will flash ERR	
Lithium battery temperature and SOC; The upper left displays BMS temperature information; The upper right displays BMS SOC information. When BMS communication fails, both the upper left and upper right displays will flash ERR	
Lithium battery capacity; The upper left displays rated capacity; The upper right displays current capacity. When BMS communication fails, both the upper left and upper right displays will flash ERR	

Lithium battery constant voltage point; The upper left displays the fixed letter CV; The upper right displays the BMS constant voltage charging point. When BMS communication fails, the upper right display will flash ERR	
Lithium battery fault alarm information; The upper left displays BMS alarm information; The upper right displays BMS fault information. When BMS communication fails, both the upper left and upper right displays will flash ERR	

5. Fault Reference Code

Fault display:



Function description: If alarm occurs, Fault indicator flashes and buzzer sounds every one second for 1 minute, then stop. If fault occurs, the fault indicator is always on, the buzzer sounds 10 seconds then stops. System will try restart aromatically. If the machine does not work after six times' restart, the machine and LCD display will always in the fault status. You need to completely power off (off the screen) or wait for 30 minutes to restart the machine. The fault LCD display is shown in the figure above. In fault mode fault icon is bright, in alarm state alarm icon is flashing, and contact the manufacturer to troubleshoot the abnormal situation according to the fault information.

Fault: The inverter enters fault mode, with a constant red LED light and LCD displaying a fault code.

Fault code sheet

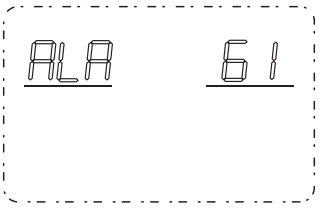
Fault code	Meaning	Relevant action	Trigger conditions	Resume conditions	Fault / Alarm
1	Bus soft boost start failed	Turn fault mode	Bus voltage does not reach set value for more than 30 seconds.	Cannot restore.	Fault
2	Bus voltage high	Turn fault mode	The bus voltage is higher than protection point.	Cannot restore.	Fault
3	Bus voltage low	Turn fault mode	Bus voltage is below the under voltage protection point.	Cannot restore.	Fault
4	Battery over current	Turn fault mode	TZ interrupt triggered more than 2 times within 2ms.	Cannot restore.	Fault
5	Over temperature	Turn fault mode	The PFC temperature exceeds the protection threshold. Fan stuck for more than 5 minutes.	Tried to restart six times, if failed, cannot restore.	Fault
6	Battery high voltage	Turn fault mode	Battery voltage is higher than set value.	Restore after voltage is lower set value.	Fault
7	Bus soft start fault	Turn fault mode	Turn fault mode. The soft start process has exceeded but the bus voltage has not reached set value.	Cannot restore.	Fault

Fault code	Meaning	Relevant action	Trigger conditions	Resume conditions	Fault / Alarm
8	Bus short circuit	Turn fault mode	Inverter on or PFC on, bus voltage below threshold.	Cannot restore.	Fault
9	Inverter soft start fault	Turn fault mode	The bus voltage is higher than protection point, or the DC component is greater than 20V. or the inverter is not completed within 5 minutes.	Cannot restore.	Fault
10	INV over voltage	Turn fault mode	The inverter voltage is higher than the set value [276V].	Cannot restore.	Fault
11	INV under voltage	Turn fault mode	Battery mode and there is no short circuit in the inverter, the inverter voltage is lower than 160V.	Cannot restore.	Fault
12	INV short circuit	Turn fault mode	In battery mode or Standby mode, if the inverter voltage is lower, current is greater than set value.	Tried to restart six times, if failed, cannot restore.	Fault
13	Negative power protection	Turn fault mode	In battery mode, the load power is lower than set value(negative power, such as -1200W).	Cannot restore.	Fault
14	Over load	Turn fault mode	Overload exceeds limit (list in specification).	Tried to restart six times, if failed, cannot restore.	Fault
15	Model fault	Turn fault mode	Cannot match any model in model number detection.	Cannot restore. Check whether the control board is assembled incorrectly or whether the program is burned incorrectly.	Fault

Fault code	Meaning	Relevant action	Trigger conditions	Resume conditions	Fault / Alarm
16	No boot loader	Turn fault mode	No boot loader.	Cannot restore. Try to send command TIDA1911000000000000.	Fault
26	BMS fault	Turn fault mode	Error code in BMS message.	Turn off BMS communication function or BMS fault recovery.	Fault
28	NTC fault	Turn fault mode	NTC open circuit	Cannot restore	Fault
29	Inverter over current	Turn fault mode	Instantaneous current of inverter is higher than set value.	Tried to restart six times, if failed, cannot restore.	Fault

6. Alarm Reference Code

Alarm: the inverter does not enter the fault mode, LED red light flashing, LCD displays the Alarm code.



Alarm code sheet

Alarm code	Meaning	Relevant action	Trigger conditions	Resume conditions	Fault / Alarm
50	Battery open	Alarm, battery does not charge.	Battery voltage is below set point.	Restore after battery voltage recover.	Alarm
51	Battery low voltage shutdown	Alarm, battery low voltage shutdown or cannot power on.	Battery voltage is below set point.	Restore after battery voltage recover.	Alarm

Alarm code	Meaning	Relevant action	Trigger conditions	Resume conditions	Fault / Alarm
52	Battery low voltage	Alarm	Battery voltage is below set point.	Restore after battery voltage recover.	Alarm
53	Charger short circuit	Warning, battery does not charge.	The battery voltage is less than 5V and the charging current is greater than 4A.	Cannot restore.	Alarm
54	Low power discharge	Alarm	The battery voltage is greater than 26.4V and the discharge time exceeds the set low-power discharge time.	Restore after battery voltage recover.	Alarm
55	Battery over charge	Alarm, battery does not charge.	Battery voltage is higher than the set value.	Can restore.	Alarm
56	BMS disconnect	Alarm, lock standby mode.	No correct BMS communication response within 10 seconds.	Restore after communication recover.	Alarm
57	Over temperature	Alarm, battery does not charge.	The temperature of PFC or INV is above the set value.	Restore after temperature is under set value.	Alarm
58	Fan error	Alarm, if one fan fails and the other fan is running at full speed.	Fan speed is less than the set value.	Restore after fan recover.	Alarm

Alarm code	Meaning	Relevant action	Trigger conditions	Resume conditions	Fault / Alarm
59	EEPROM error	Alarm	Numerical calibration error.	Restore after calibration right.	Alarm
60	Overload	Alarm, battery does not charge.	When not in mains mode or the PV is normal and the output priority is not mains priority, the load exceeds 102% and the duration is 200-220 ms.	Restore after load back to normal	Alarm
61	Abnormal generator waveform	Alarm, continuously operating in battery mode.	Generator waveform detection result is abnormal.	Can restore.	Alarm
62	PV Energy Weak	Alarm, turn off PV output and charging.	When the battery is not connected, the bus voltage is lower than the set value.	Restore after 10mins.	Alarm
63	Synchronization signal fail	Alarm, turn fault mode.	Host or slave with host present, no synchronization signal restored within set value	Restore after signal recover.	Alarm
68	SOC Under	Alarm, turn standby mode.	Lithium battery SOC is lower than the set value.	Restore after turning off the low SOC shutdown function, or turning off the BMS communication function, or when the SOC returns to the set value + 5%.	Alarm

Alarm code	Meaning	Relevant action	Trigger conditions	Resume conditions	Fault / Alarm
69	SOC Low	Alarm, if it is in standby mode, it will remain in standby mode and not power on.	Lithium battery SOC is lower than the set value + 5% (mains mode or battery mode), lower than the set value + 10% (standby mode).	Restore after turning off the low SOC shutdown function, or turning off the BMS communication function, or when the SOC returns to the set value + 10%.	Alarm
70	Battery terminal source fail	Alarm, turn standby mode	Battery is not connected and the voltage of battery terminal is lower than set value.	Restore after battery is detected or detected that the battery terminal voltage exceeds the set value for one consecutive minute.	Alarm

7. Battery Equalization

Equalization function is added into charge controller. It reverses the buildup of negative chemical effects like stratification, a condition where acid concentration is greater at the bottom of the battery than at the top. Equalization also helps to remove sulfate crystals that might have built up on the plates. If left unchecked, this condition, called sulfation, will reduce the overall capacity of the battery. Therefore, it's recommended to equalize battery periodically.

Note:*Don't activate this mode when using lithium batteries.

- How to Apply Equalization Function

  You must enable battery equalization function in monitoring LCD setting Program 29 first. Then, you may apply this function in device by either one of following methods:

  1.Set balance mode on Program 29.

  2.Set balance voltage point on Program 30.

  3.Set balance charging time on Program 31.

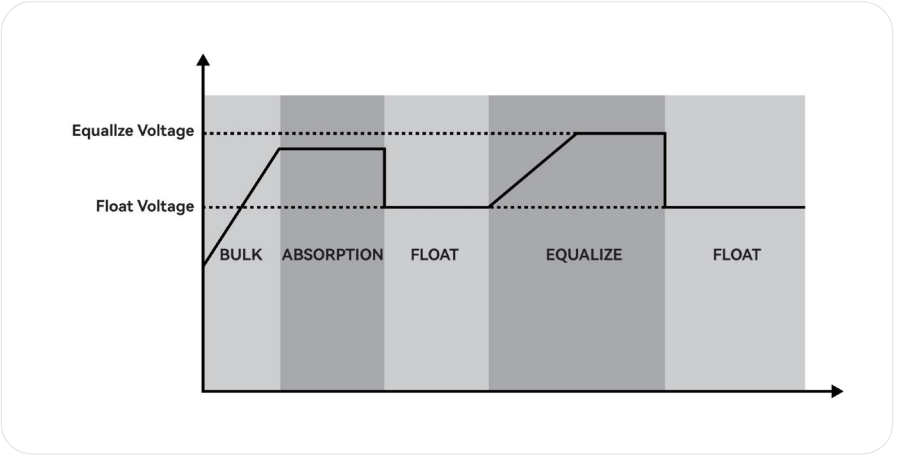
  4.Set balance delay time on Program 32.

  5.Set balance interval time on Program 33.

  6.Set immediate balance mode activation on Program 34.

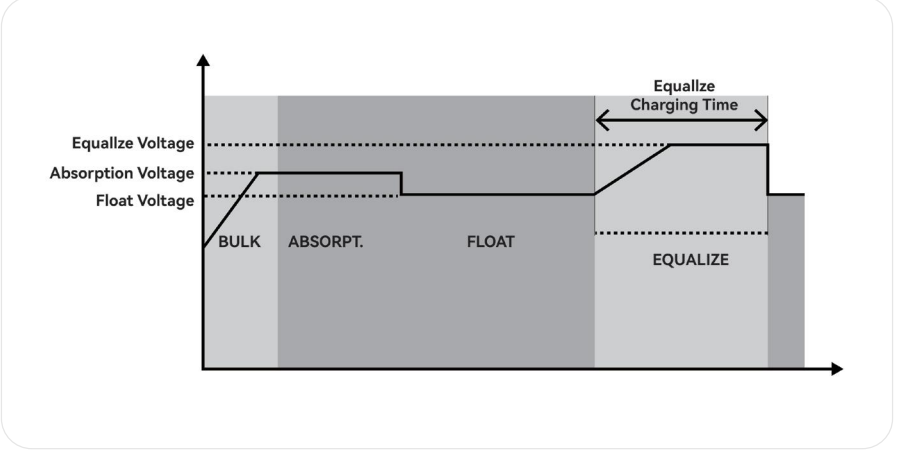
• When to Equalize

In float stage, when the setting equalization interval (battery equalization cycle) is arrived, or equalization is active immediately, the controller will start to enter Equalize stage.

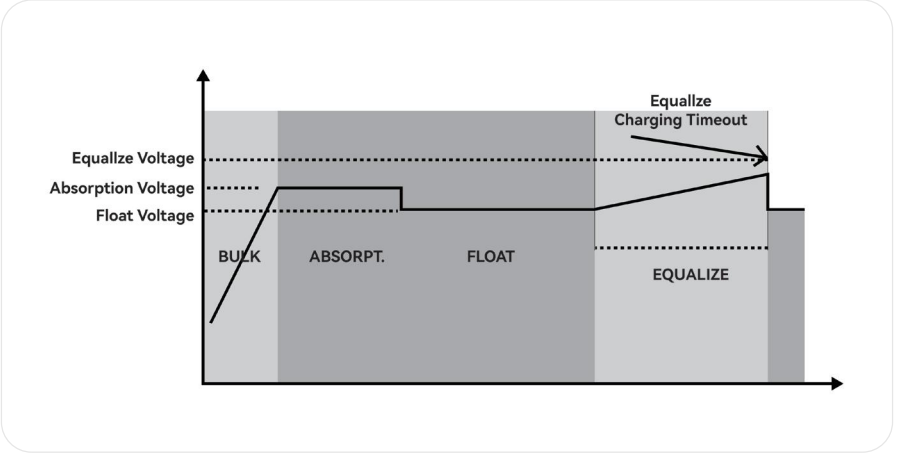


• Equalize charging time and timeout

In Equalize stage, the controller will supply power to charge battery as much as possible until battery voltage raises to battery equalization voltage. Then, constant-voltage regulation is applied to maintain battery voltage at the battery equalization voltage. The battery will remain in the Equalize stage until setting battery equalized time is arrived.



However, in Equalize stage, when battery equalized time is expired and battery voltage doesn't rise to battery equalization voltage point, the charge controller will extend the battery equalized time until battery voltage achieves battery equalization voltage. If battery voltage is still lower than battery equalization voltage when battery equalized timeout setting is over, the charge controller will stop equalization and return to float stage.



8. Specifications

8.1 Line Specifications

	Item	Value	Comments
Input voltage	Main topology	L + N + PE	
	Nominal voltage	220Vac	Settable: 208/220/230/240 Vac
	Input voltage range	90~280Vac	Settable
	Input low loss	154Vac (default) Settable: 90-154	Appliance mode Generator mode
		185Vac (default) Settable: 170-200	UPS mode

	Item	Value	Comments
Input voltage	Input low comeback	Low loss voltage +9V	
	Input high loss	264Vac(default) Settable:264-280	Appliance mode Generator mode
		264Vac	UPS mode
	Input high comeback	High loss voltage -9V	
	Nominal frequency	50 / 60Hz	
	Frequency range	40 / 70Hz	
	Freq. low loss / Comeback	40/43.5Hz@50Hz(UPS mode) 40/40.5HZ@50HZ(APP/GEN mode)	
		50/53.5Hz@60Hz(UPS mode) 50/50.5HZ@60HZ(APP/GEN mode)	
	Freq. High loss / Comeback	60/56.5Hz@50Hz(UPS mode) 70/69.5Hz@50Hz(APP/GEN mode)	
		70/66.5Hz@60Hz(UPS mode) 70/69.5Hz@60Hz(APP/GEN mode)	
	Max current (RMS)	20A	>20A,60s; >22A,10s; >24A,3s; >26A,200ms;

Note: When the specification of the external circuit breaker is greater than 20A, the maximum input current is 20A.

When the external circuit breaker specification is less than 20A, the maximum input current depends on the external circuit breaker specification.

8.2 Battery Specifications

* N= battery pieces

	Item	Value	Comments
Battery information	Battery pieces	2pcs	12V/PCS
	Auto restart function	Yes	
	Battery test function	No	
	Battery type	VRLA/LI	
	Nominal battery voltage	N*12V	@25℃
	Battery management	Yes	
Battery protection	Battery over voltage	30.5V	
	Battery under voltage	10.5V*N	Settable:10*N~11*N
	Battery low voltage alarm	10.8V*N	Settable:10.3*N~11.3*N
	Over current protection	Fuse	Fast acting

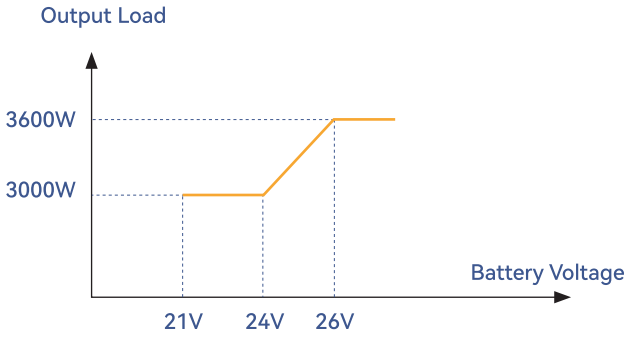
8.3 Charger Specifications

	Item	Value	Comments
Charger(line mode)	Charging voltage	FV MODE: 27V Settable: 26.6~27.8V CV MODE: 28.2V Settable: 28~29V	
	Temperature compensation	No	
	Charging current	2~100A	Settable
	Default charging current	40A	
	Charging mode	Two/Three/Auto Settable	Three states: CC/CV/Float Two states: CC/Float
	Charge voltage accuracy	±5%	Calibrated by RS232
Charger(PV)	PV charging method	MPPT	
	PV maximum input power	5000W	
	PV maximum input current	18A	
	Efficiency	99.5%max	
	PV voltage accuracy	±2%	
	MPPT voltage	40-450Vdc	
	Default charging current	60A	
	Recommended PV configuration voltage	MPPT Voltage: 300-340V Open Circuit Voltage: 370-430V	
	Max PV voltage	500Vdc	
	Min PV voltage	40Vdc	
	PV start-up voltage	60Vdc	If PV voltage is below 60V, inverter needs to be connected to the battery for use. While PV voltage is above 60V, inverter can work without battery.
	Max PV charge current	100A	

8.4 Output Specifications

	Item	Value	Comments
Output power rating	Output topology	L+N+PE	
	Output power	4KVA	When setting the Output voltage to 208V, the Output Power rating will be reduced to 90%; Please refer to the Battery Voltage Derating Curve ① and Max Output Power rating② for more details.
Output voltage	Nominal voltage	208/220/230/240 VAC	Default 220V, manual set by RS232 or LCD
	Waveform	Sinusoidal	
	Voltage regulation	±5%	
	DC offset	±200mV (Bat mode)	Empty load and linear load mode
Output frequency	Nominal frequency	50 / 60Hz	50/60Hz auto selection (default on)manual set by RS232, default 50 Hz
	Line mode	50Hz: (43.5 - 56.5)Hz (UPS mode) (40 - 70)Hz (APP/GEN mode) 60Hz: (53.5 - 66.5)Hz (UPS mode) (40 - 70)Hz (APP/GEN mode)	
	Battery mode	50 / 60Hz	
	Frequency regulation	±0.1Hz	
Output overload battery mode	102%<Load ≤110%	1 minute minimum, then alarm and turn off output	
	110%< Load ≤130%	10 seconds minimum, then alarm and turn off output	
	130%<Load ≤150%	3 seconds minimum, then alarm and turn off output	
	Load>150%	200 ms minimum, then alarm and turn off output	
Output short circuit protection	Battery mode	Current limitation	
	Line mode	Breaker (20A)	

①Battery Voltage Derating Curve



②Max Output Power rating

Max Output Power rating			
Battery	PV	AC Input	Max Output Power
L	N	N	Follow the battery voltage derating curve as shown in ①.
N	L	N	Depends on the PV input power and Maximum is 4KVA .
N	N	L	Input Voltage * Input Max current 20A
L	L	N	Two ways to achieve 4KVA are as follows: 1.Battery Voltage≥26V; 2.Battery Voltage≥21V and PV Input Power≥900W; If none of the above conditions are met, then follow the battery voltage derating curve as shown in ①.
N	L	L	Input Voltage * Input Max current 20A
L	N	L	Input Voltage * Input Max current 20A
L	L	L	Input Voltage * Input Max current 20A

Note:The "L" in the diagram represents the meaning of being accessed or connected, while the "N" signifies the meaning of not being accessed or not being connected.

8.5 Switch Time Specifications

	Items	Value	Comments
Switch time	Line Mode To Battery Mode	10ms(typical)	UPS mode
		10ms(typical)	Appliance mode
		20ms(typical)	Generator mode

8.6 Efficiency Specifications

	Item	Value	Comments
Efficiency	Line Mode	>99.5%@3KVA >99.5%@5KVA	Full R load, without battery connect.
	Battery Mode	>92%@1KVA >92%@2KVA >90%@3KVA	Full R load.
	Standby power	<65W	Empty load mode, battery disconnected.

9. Trouble Shooting

Problem	Fault Event	Trigger conditions	What to do
LED screen display fault code 5	Overtemperature	1.PFC temperature exceeds the protection threshold [85°C when not locked rotor, 65°C when locked rotor] for more than 20 seconds. 2.Fan lock exceeds 30 seconds.	Please check if the fan is not connected or if there are loose wiring issues. If the fan is not connected for more than 30 seconds, the machine will report fault code 5.
LED screen display fault code 12	Inverter short circuit	In battery mode or standby mode, if the inverter voltage is lower than 100V and the inverter current is greater than 40A, it should respond within 80-100ms.	1.Check if there is a short circuit at the output terminals (such as a screw piercing through the locking terminal causing a LN short circuit). 2.Verify if the inverter voltage and inverter current meet the triggering conditions.
LED screen display fault code 15	Model malfunction	The model number detection does not match any model number.	Check if the control board is assembled incorrectly or if the program is burned incorrectly.
LED screen display fault code 16	No boot program	The third digit of the communication is not 1.	Send command: TIDA1911000000000000

Problem	Fault Event	Trigger conditions	What to do
LED screen display fault code 20	CAN communication error	In battery mode, if the battery mode is set to mains power mode and the parallel mode is set to mains power mode, the number of responses from the slave devices does not match the previously defined number of slave devices. Receiving communication from two or more devices with a slave number of 0 consecutively.	1.Check if the parallel mode is set but the machine is turned on in single machine mode. 2.Check if the parallel connection cable and the parallel board are connected according to the parallel SOP (Standard Operating Procedure).
LED screen display fault code 58	Fan malfunction	Any of the fans rotating less than 8 times within 2 seconds.	1.Check if the fan is not connected properly or if there are any loose connections. 2.If the fan is properly connected: a) Check if there is any issue with the fan detection circuit, usually caused by excessive soldering underneath the control board socket. b) Check if the fan itself is damaged.
Unable to start	Battery	Due to the need for a voltage of ≥11.5V/N to start the machine in battery mode, common reasons for failure to start include improper calibration or insufficient battery voltage.	1.Check if the battery voltage sampling is functioning properly and if the battery voltage has been calibrated. 2.Use a multimeter to measure the voltage at the battery terminals (using a DC power supply or a real battery) to see if it reaches the minimum voltage of 11.5V per cell for startup. Note: It is crucial to configure the battery voltage according to the machine model. Connecting the wrong battery voltage can cause capacitor explosion.

Problem	Fault Event	Trigger conditions	What to do
	Utility power		1.Check for any short circuits at the mains terminal (such as a screw piercing through and causing a short circuit between the live and neutral terminals). 2.Check if there are any wiring errors, such as mistakenly connecting the mains input to the output terminals.
	PV		1.Check if the PV input voltage is too close to the critical threshold. 2.For low voltage versions of the machine, check if the software version numbers of the main control is compatible. If the software versions differ significantly, the machine may not be activated.
PV not charging			1.For low voltage versions of the machine, check if the software version numbers of the main control is compatible. If the software versions differ significantly, the machine may not be activated. 2.Connecting the wrong battery voltage can result in damage to the auxiliary power supply on the PV side, causing a loss of power and inability to communicate with the main control.