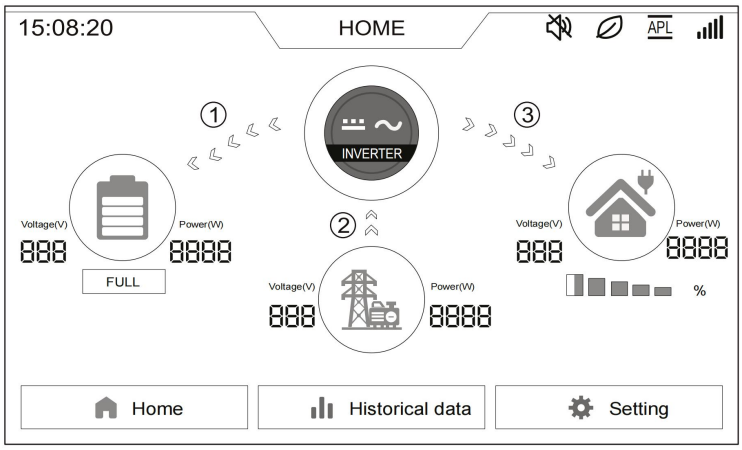
External Display For RV Inverter

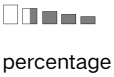
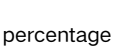
Contents

1 External LCD display operating instructions

1.1Operation and display panel

Capacitive LCD screen introduction



Icons	Functions	Icons	Functions
	Stands for inverter and the default is green. When a fault occurs, the icon will turn red and the fault code will be displayed in the red box above the icon.	15:08:20	Indicates current time of the inverter.
	Stands for mains input and the default is gray. This icon lights up when the mains is connected to the inverter. The left side of the icon shows the mains input voltage and the right side shows the mains input apparent power.		Stands for output load and the default is gray. The icon lights up after the output voltage is delivered. The left side of the icon shows the inverter output voltage and the right side shows apparent power of the load.
	If the icon turns blue, the inverter is connected to the battery. The left side of the icon shows the battery output voltage and the right side shows the battery output power.  Indicates the remaining battery power 0%~19%,  Indicates the remaining battery power 20%~39%,  Indicates the remaining battery power 40%~59%,		Indicates the AC output load percentage in 100 steps, the load value will be displayed to the right of the load factor bar.  % Indicates that the load percentage is 0%~19%,  % Indicates that the load percentage is 20%~39%,  % Indicates that the load percentage is 40%~59%,  % Indicates that the load percentage is 60%~79%,  % Indicates that the load percentage is 80%~100%.

	Indicates the remaining battery power 60%~79%, Indicates the remaining battery power 80%~100%.		
	Indicates that the machine is currently in energy-saving mode.		Indicates that the buzzer is not enabled.
	Indicates successful communication between the machine and the battery BMS.	APL	Indicates that the machine is currently in the APL voltage range.
FULL	Indicates that the battery is fully charged.	Home	Switch to the home screen.
Historical data	Switch to historical data screen.	Setting	Switch to the settings screen.
Display dynamic lines			
①	Indicates that the battery is powered to the inverter or the inverter is charging the battery.	③	Indicates that the inverter supplys power to the load.
②	Indicates that the grid power to the inverter.		

Real-time data viewing

On the main LCD screen, click on the inverter icon, the battery icon, the mains icon or the load icon to view the machine's real-time data.

System data			
No.	**Real-time data items**	**No.**	**Real-time data items**
1	Outside temperature ℃	6	SN codes (inverter serial numbers)
2	PV temperature ℃	7	Models
3	Power temperature ℃	8	Machine status
4	Transformer temperature ℃	9	Rated power kW
5	Software versions	10	Bootloader versions

Battery data			
1	SOC (percentage of remaining battery capacity)	4	Charging and discharging current A
2	Power W (battery charging and discharging power)	5	Battery amp hours AH (total battery capacity)
3	Voltage V (battery charging and discharging voltage)	/	/
Utility data			
1	Voltage V (mains input voltage)	4	Active power W
2	Current A (mains input current)	5	Apparent power VA
3	Frequency Hz (grid input frequency)	6	mains charging current (battery-side charging current from the mains)
Load data			
1	Voltage V (AC output voltage)	4	Active power W (AC output active power)
2	Current A (AC output current)	5	Apparent power VA (AC output apparent power)
3	Frequency Hz (AC output frequency)	6	Load factor % (percentage of AC output load)

Real-time data viewing

Click on the historical data button in the menu bar below to access the historical data screen and view various types of historical data.

Day's data			
1	Battery charge amp hours	4	Load power consumption
2	Battery discharge amp hours	5	Mains charging power
3	PV power generation	6	Load power consumption from the mains
Historical data			
1	PV generation last seven days history	4	Mains charge history for last 7 days

2	Battery charge history for last 7 days	5	Load power consumption history for last 7 days
3	Battery discharge history for last 7 days	6	Load power consumption from the mains history for last 7 days
Cumulative data			
1	Total battery charge times	5	Cumulative load power consumption
2	Cumulative battery charge amp hours	6	Cumulative load power consumption from the mains
3	Cumulative battery discharge amp hours	7	Cumulative charge from the mains
4	Cumulative PV generation		
Historical faults			

1.2 Setting parameters introduction

Operating Instructions: Click on the settings button in the menu bar below to enter the settings screen, which contains four categories of settings: output settings, charging settings, battery settings and system settings.

No.	Parameter name	Setting options	Description
Output modes			
01	Work priority mode	[01] Mains priority Default	Mains priority mode, switching to inverter only when mains power is not available.
		[01] Inverter priority	Inverter priority mode, switching to mains only when the battery is under-voltage or below the parameter [04] value.
02	Output frequency	[02] 50.0	Bypass adaption, when there is mains power, it automatically adapts to the frequency when the power is first applied; when there is no mains power, the output frequency can be set through this menu. 50HZ by default for 230V machines, 60HZ by default for 120V machines.
		[02] 60.0	
03	AC input voltage range	[03] APL	230V machine with wide range input mains voltage range 90 to 280V. 120V machine mains input range: 90~140V.
		[03] UPS Default	230V machine narrow range input mains voltage range 170 to 280V. 120V machine mains input range: 90~140V.
04	Battery to mains	[04] 10.9 Default	Parameter [01] = inverter priority, when the battery voltage is lower than this setting value, the output will be

No.	Parameter name	Setting options	Description
			switched from inverter to mains, setting range 10V~13V, and cannot be set beyond the [28] setting item.
05	Mains to battery	[05] 14.4V Default	Parameter [01] = inverter priority, when the battery voltage is higher than this setting value, the output is switched from mains to inverter, setting range 12V~15V, and cannot be set lower than [04] and [28] setting items.
06	Energy-saving mode	[06] Disable Default	Disable energy-saving mode.
		[06] Enable	After enabling energy-saving mode, if the load is empty or less than 50W, the inverter output will be delayed for a period of time and then switched off; when the load is greater than 50W, the inverter will automatically start.
07	Over-temperature automatic restart	[07] Disable	Over-temperature automatic restart is prohibited and the output is no longer switched on if an over-temperature shutdown occurs.
		[07] Enable Default	Enables automatic over-temperature restart, so if an over-temperature occurs the output is switched off and will restart and switch on when the temperature has dropped.
08	Inverter overload to bypass	[08] Disable	Automatic switching to mains power is prohibited in case of inverter overload.
		[08] Enable Default	Automatic switch to mains in case of inverter overload.
09	AC output voltage range setting (settable in standby mode only)	[09]120Vac Default	**U-Series models:** 100/105/110/120Vac settable, default 120Vac. AC output power = rated power * (setting voltage/120).
		[09] 230Vac Default	**S-Series models:** 200/208/220/230/240Vac settable, default 230Vac. AC output power = rated power * (setting voltage/230).
10	12V output enable	[10] Disable Default	Disables 12V DC output.
		[10] Enable	Enables 12V DC output.
11	Mains input current overcurrent point	[11] 40A Default	If the mains input current exceeds this setting, the power will be limited, the setting range 8A-40A.
12	Output split phase	[12] Disable Default	Disables this function.
		[12] Enable	Enables output with IFT transformer.
Charging settings			
13	Charging mode (non-modifiable)	[13] Mains priority	Mains priority charging, PV charging only when mains power is not available.
14	Max. charging current	[14] 60A Default	230V Setting range 0 to 140A.
			120V Setting range 0 to 100A.
15	Boosting charging voltage	[15] 14.2V Default	Boost charge voltage setting, setting range 12V~14.6V.

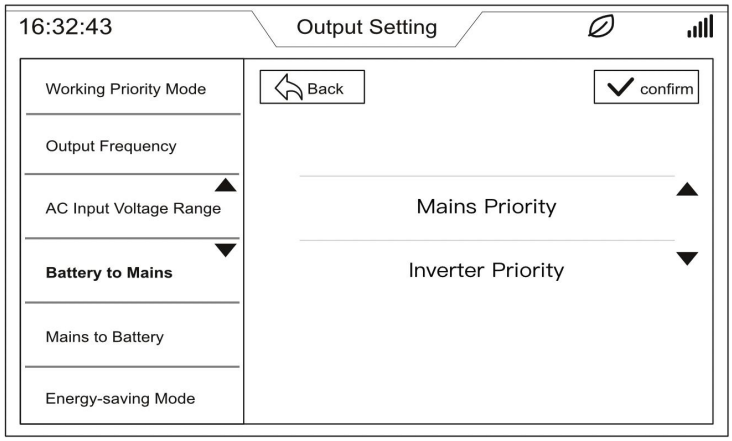
No.	Parameter name	Setting options	Description
16	Boosting maximum charging time	[16] 120 Default	Boost charge maximum time setting, refers to constant voltage charging when the voltage reaches the parameter [15] set voltage maximum charge time, setting range 5mins to 900mins, valid when the battery type is custom and lithium battery.
17	Float Voltage	[17] 13.8V Default	Float voltage, setting range 12V~14.6V, valid when battery type is custom.
18	Over-discharge voltage	[18] 10.5V Default	Over-discharge voltage, when the battery voltage is lower than this judgment point, the inverter output will be turned off after the time set by the delay parameter [19], the setting range is 20V~24V, valid when the battery type is custom and lithium battery.
19	Over-discharge delay time	[19] 5S Default	Over-discharge delay time, when the battery voltage is lower than parameter [18], the inverter output will be switched off after delaying the time set in this parameter, setting range is 5s~55s, valid when the battery type is custom and lithium.
20	Battery under-voltage alarm point	[20] 11V Default	Battery under-voltage alarm point, when the battery voltage is lower than this judgment point, the under-voltage alarm will be reported, the output will not shut down, the setting range is 10V~13V, valid when the battery type is custom and lithium battery.
21	Battery discharge limit voltage	[21] 10V Default	Battery discharge limit voltage, when the battery voltage is below this judgment point, the output will switch off immediately. Setting range 10V~13V, valid when the battery type is custom and lithium.
22	Balanced charging	[22] Disable	Disables balanced charging.
		[22] Enable Default	Enables balanced charging, valid only for open lead-acid and sealed lead-acid batteries.
23	Balanced charging voltage	[23] 14.2V Default	Balanced charging voltage, setting range 12V to 14.6V, valid for open and sealed lead-acid batteries.
24	Balanced charging time	[24] 5 Default	Balanced charging time, set from 5mins to 900mins, valid for open lead-acid and sealed lead-acid batteries.
25	Balanced charging delay	[25] 10 Default	Balanced charging delay, setting range 5mins~900mins, valid for open lead-acid and sealed lead-acid batteries.
26	Balanced charging interval	[26] 5 Default	Balanced charge interval, 0-30days, valid for open and sealed lead-acid batteries.
27	Balanced charging enable	[27] Disable	Immediately stops balanced charging.
		[27] Enable Default	Immediately start balanced charging.
28	Over-discharge return voltage	[28] 13V Default	When the battery is under-voltage, the battery voltage needs to be higher than this setting to restore the battery inverter AC output.
29	Boosting charge return	[29] 13V Default	When the battery is fully charged, the inverter stops

No.	Parameter name	Setting options	Description
	voltage		charging and resumes charging when the battery voltage falls below this voltage value.
Battery settings			
30	Battery type	[30] User-defined	User-defined, with all battery parameters settable.
		[30] Sealed lead-acid battery	Sealed lead-acid battery, constant charging voltage 14.4V, float charging voltage 13.8V.
		[30] Open lead-acid battery	Open lead-acid battery, constant charging voltage 14.6V, float charging voltage 13.8V.
		[30] Colloidal lead-acid battery Default	Colloidal lead-acid battery, constant charging voltage 14.2V, float charging voltage 13.8V.
		[30] Four strings of Li-ion batteries	LF04 corresponds to 4 strings of LiFePO4, 4 strings default constant charging voltage 14V, adjustable.
		[30] Four strings of ternary lithium	NC04 corresponds to 4 strings of ternary lithium batteries, 4 strings default constant charging voltage 15.2V, adjustable.
31	Automatic overload restart	[31] Disable	Disable automatic overload restart, if an overload occurs to switch off the output, the machine does not resume powering up.
		[31] Enable Default	Enable automatic overload restart, if an overload occurs to switch off the output, the machine delays for 3 mins and then restarts the output. After a total of 5 times, the machine will not restart again.
32	Buzzer alarm	[32] Disable	Disable alarm.
		[32] Enable Default	Enable alarm.
33	Mode switch alert	[33] Disable	Disable alarm alerts when the status of the main input source changes.
		[33] Enable Default	Enable alarm alerts when the status of the main input source changes.
34	RS485 address	[34] 1 Default	Modify inverter 485 address.
35	485 operating modes	[35] Disable Default	Disable RS485-2/CAN port for BMS communication function.
		[35] 485	RS485-2/CAN port for BMS communication based on RS485 communication.
		[35] CAN	RS485-2/CAN port for BMS communication based on CAN communication.
36	Communication protocol types	When item [35] is set to 485 or CAN, the corresponding communication protocol must be selected in item [36].	
		485 protocols: PACE=PACE, RUDA=RITAR, AOGUAN=ALLGRAND, OULITE=OLITER,	

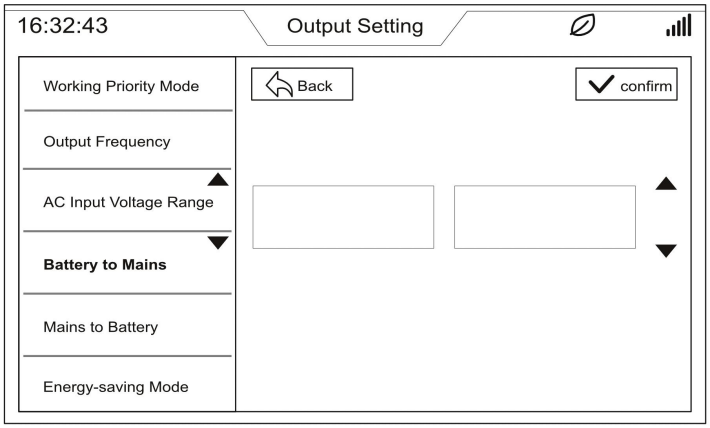
No.	Parameter name	Setting options	Description
		CEF=CFE, XINWANGDA=SUNWODA, DAQIN=DYNESS, WOW=SRNE, PYL=PYLONTECH, MIT=FOX , XIX=XINYI ELECTRIC STORAGE , POL=POWMr, GUOX=GOTION, SMK=SMKSOLAR **CAN protocols:** WST , UZE=UZ Energy	
System settings			
37	Screen interval	[37]60 Default	It can set the screen rest time, the setting range is 1-60s.
38	Screen brightness	[38]100 Default	It sets the screen brightness percentage from 10-100%.
39	System time	It shows inverter time, tap in to the setting time interface, press the modify button to modify the inverter time.	
40	485 address	The current inverter 485 address is displayed and clicks to the item [34].	
41	Constant light display	After clicked, the screen is always on and the screen brightness remains at 100%. Click on this item again to switch off the constant light display.	
42	Restore factory settings	Inverter resets.	
43	Restart	Inverter restart.	

1.3 Setup screen operation

Select interface: As shown below, click on the pre-selected item and the corresponding option will be highlighted on the screen, then click on the confirmation button to give the command.



Numeric input interface: The interface has two boxes, the left one is a display box for showing the real-time value of the item and the right one is an input box for entering the value. Click on the input box to open the keyboard (click on the triangle above the confirmation key on the keyboard to close it), enter the value and click on the confirmation key on the keyboard, the value entered will be displayed in the right box. Click on the confirmation button in the top right corner to send the value in the input box to the inverter. If the modification fails, the interface will indicate Numeric error



2 Fault code

Fault Codes	Fault name	Whether it affects output	Description
【01】	BatVoltLow	Yes	Low battery voltage alarm
【02】	BatOverCurrSw	Yes	Battery discharge average current over-current (software protection)
【03】	BatOpen	Yes	Battery not connected alarm
【04】	BatLowEod	Yes	Low battery voltage stop discharge alarm
【05】	BatOverCurrHw	Yes	Battery overcurrent (hardware protection)
【06】	BatOverVolt	Yes	Charging over-voltage protection
【07】	BusOverVoltHw	Yes	Bus overvoltage (hardware protection)
【08】	BusOverVoltSw	Yes	Bus overvoltage (software protection)
【13】	OverloadBypass	Yes	Bypass overload protection
【14】	OverloadInverter	Yes	Inverter overload protection
【15】	AcOverCurrHw	Yes	Inverter overcurrent (hardware protection)
【17】	InvShort	Yes	Inverter short circuit protection
【20】	OverTemperInv	Yes	Inverter AC output with load or AC charging radiator over-temperature protection
【21】	FanFail	Yes	Fan blockage or failure fault
【22】	EEPROM	Yes	Memory failure
【23】	ModelNumErr	Yes	Model setting error
【25】	BusShort	Yes	Busbar short circuit
【26】	RlyShort	Yes	Inverted AC output backfills to bypass AC input
【29】	BusUnderVoltSw	Yes	Bus voltage low protection
【30】	BatCapacityLow1	Yes	Alarm given when battery capacity rate is lower than 10%
【32】	BatCapacityLowStop	Yes	Inverter stops when battery capacity is low
【41】	InvDcVoltErr	Yes	Inverter DC voltage error
【58】	BMSCommErr	No	BMS communication failure
【59】	BMSOtherAlarm	No	BMS secondary failure
【60】	BMSBattUT	No	BMS reports low battery charge and discharge temperatures or

			low ambient temperatures
【61】	BMSBattOT	No	BMS reports battery charge and discharge over temperature or ambient over temperature or MOS tube over temperature
【62】	BMSBattOI	No	BMS reports over-current or battery short-circuit
【63】	BMSBattUV	No	BMS reports battery under-voltage
【64】	BMSBattOV	No	BMS reports battery over-voltage

3 Partial troubleshooting measures

Fault Codes	Fault	Solutions
Display	No display on the screen	Check if the battery circuit breaker or PV circuit breaker is turned off. And check that the switch is "ON"; press any button on the screen to exit the screen sleep mode.
【06】	Battery overvoltage protection	Check that the battery voltage does not exceed the protection value. If it does, discharge the battery until the voltage is below the battery over-voltage recovery point.
【01】【04】	Battery undervoltage protection	Charge the battery until it returns to the low voltage disconnection recovery voltage.
【21】	Fan failure	Check if the fan is not turning or blocked by foreign object.
【19】【20】	Heat sink over temperature protection	When the temperature of the device is cooled below the recovery temperature, normal charge and discharge control is resumed.
【13】【14】	Bypass overload protection, inverter overload protection	① Reduce the use of power equipment; ② Restart the unit to resume load output.
【17】	Inverter short-circuit protection	① Check the load connection carefully and clear the short-circuit fault points; ② Re-power up to resume load output.
【03】	Battery disconnected alarm	Check if the battery is not connected or if the battery circuit breaker is not closed.
【26】	AC input relay short-circuited	Disconnect the AC, PV and battery inputs, wait until the screen goes off and only the battery is powered up, if the【26】 fault still occurs, the AC input relay is short-circuited and needs to be replaced by the manufacturer.