

Configuration Manual

Axpert VMIII / KING
48V/5KW
SOLAR INVERTER / CHARGER

1 . Operating Sample

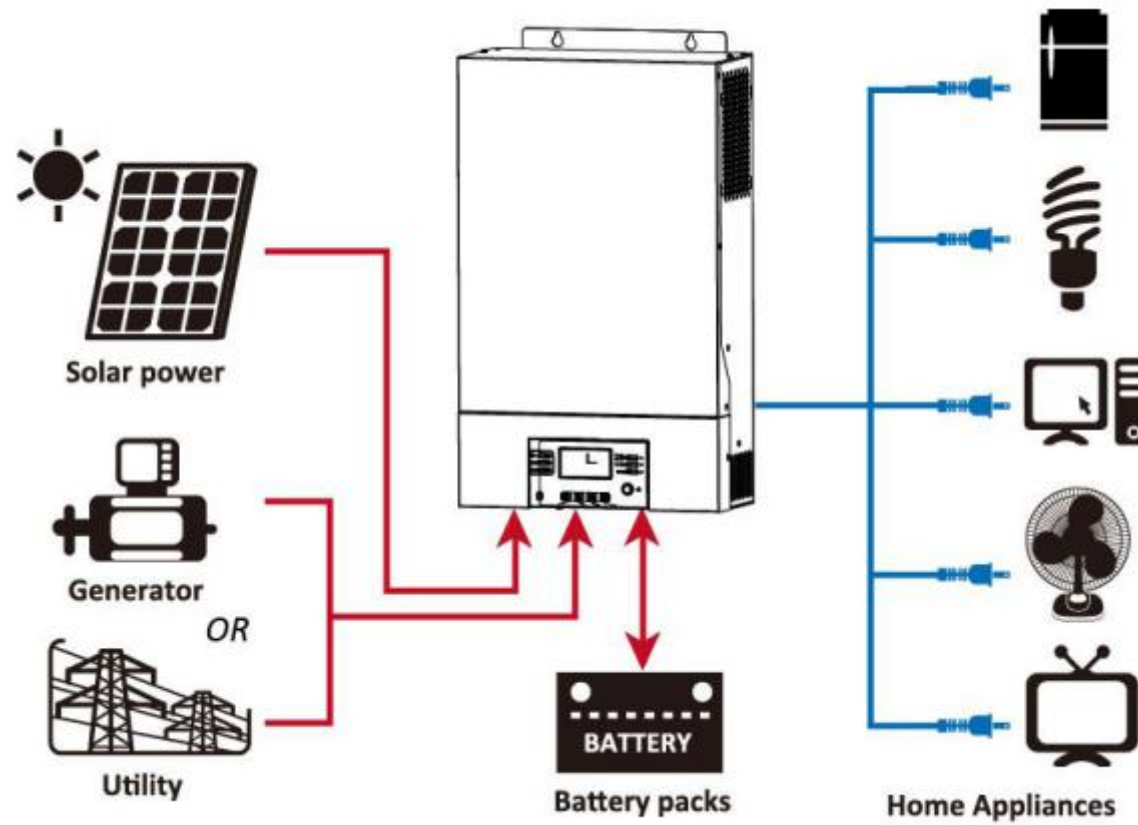
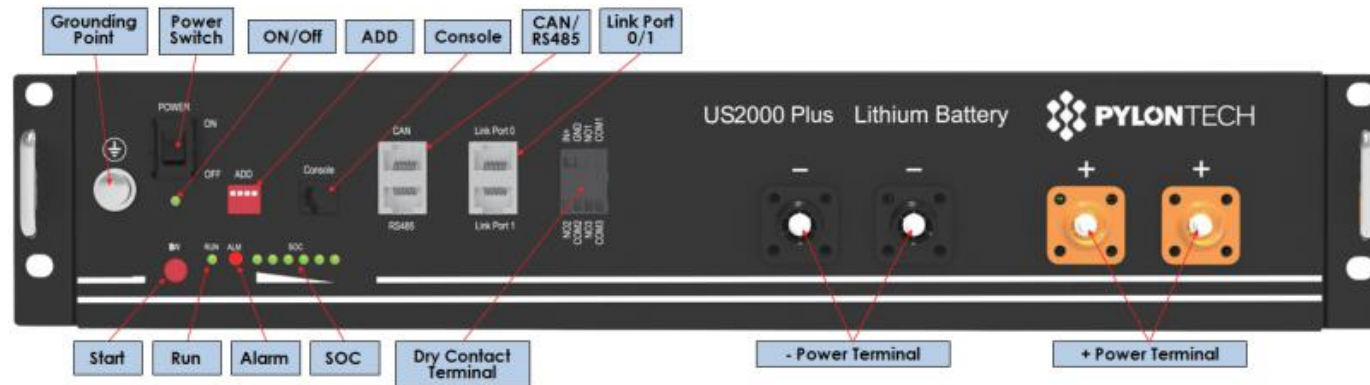


Figure 1 Hybird power system

2 . Battery Module (US2000 Plus/US3000) Front Interface



Power Terminal connect to VMIII/KING 10 port .

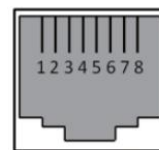
Battery input.

RS485 port connect to VMIII 15 port/KING 17 port.

BMS Communication port: RS485

Definition of RJ45 Port Pin (Battery side)

No.	RS485 Pin
1	--
2	--
3	--
4	--
5	--
6	GND
7	RS485A
8	RS485B



RJ45 Port

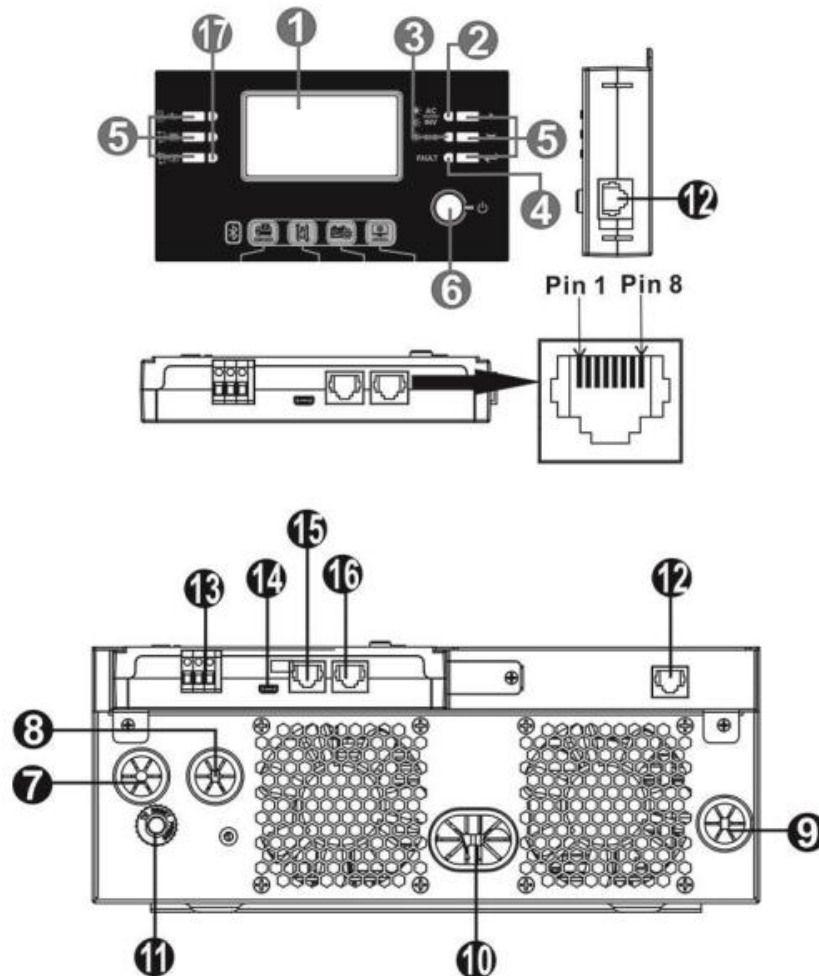


RJ45 Plug

Definition of RJ45 Port Pin (Inverter side)

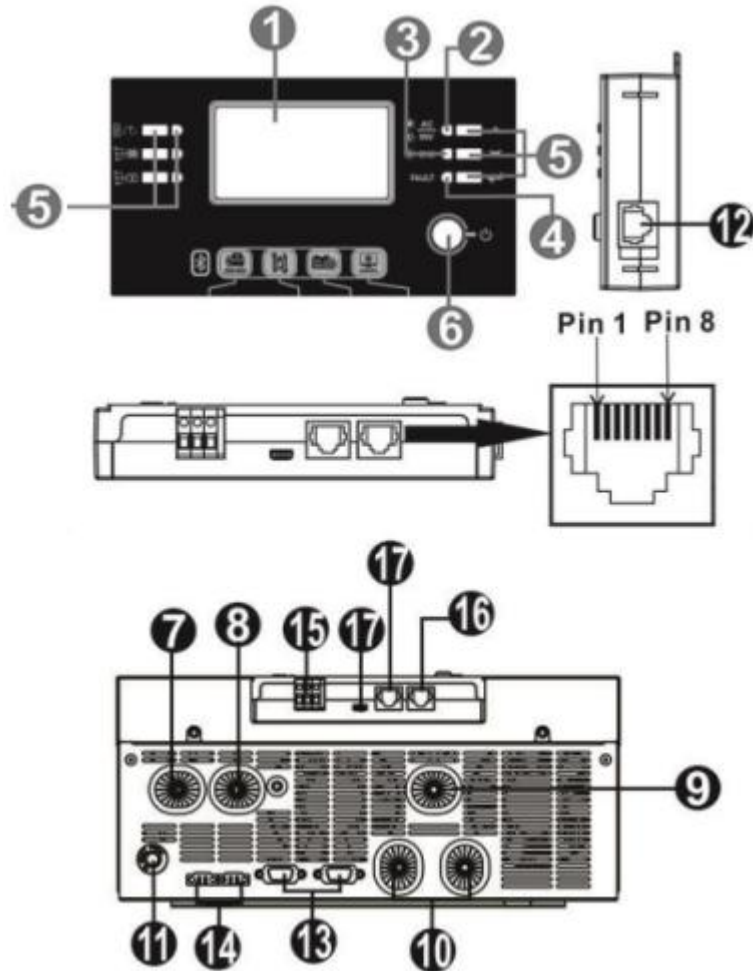
No.	RS485Pin
1	--
2	--
3	RS485B
4	--
5	RS485A
6	--
7	--
8	--

3 . Axpert VMIII Overview



1. LCD display
2. Status indicator
3. Charging indicator
4. Fault indicator
5. Function buttons
6. Power on/off switch
7. AC input
8. AC output
9. PV input
10. Battery input
11. Circuit breaker
12. Remote LCD panel communication port(optional)
13. Dry contact
14. USB communication port
15. BMS Communication port: RS485(to Battery)
16. RS-232 communication port (to PC)
17. LED indicators for USB function setting/ Output source priority timer / Charger source priority setting

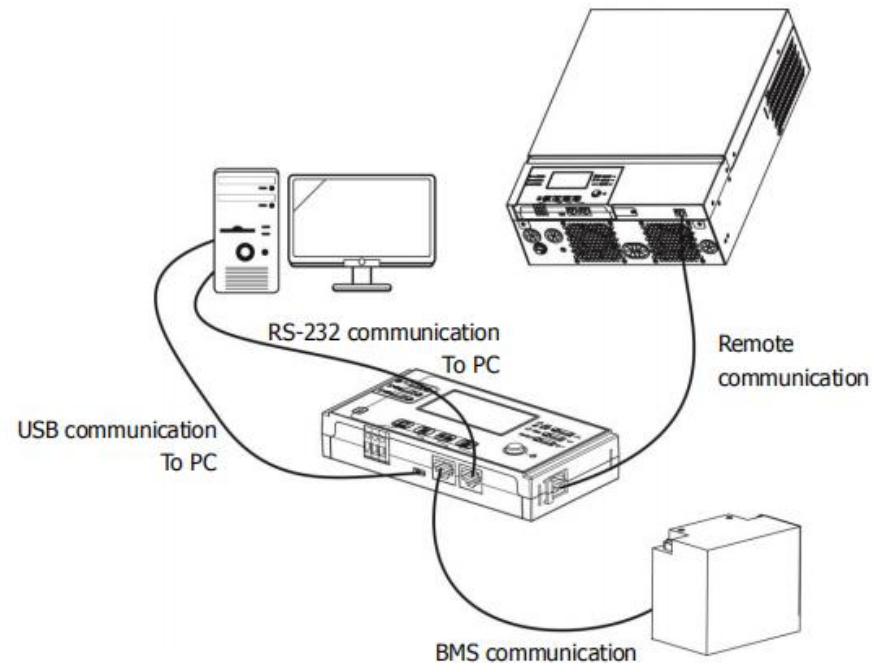
Apert KING Overview



1. LCD display
2. Status indicator
3. Charging indicator
4. Fault indicator
5. Function keys
6. Power on/off switch
7. AC input
8. AC output
9. PV input
10. Battery input
11. Circuit breaker
12. Remote LCD panel communication port
13. Parallel communication cable (only for parallel model)
14. Current sharing cable (only for parallel model)
15. Dry contact
16. RS-232 communication port (to PC)
17. BMS Communication port:RS485(to Battery)

4 . Communication Connection

Connect LCD panel to the inverter with an optional RJ45 communication cable as below chart.



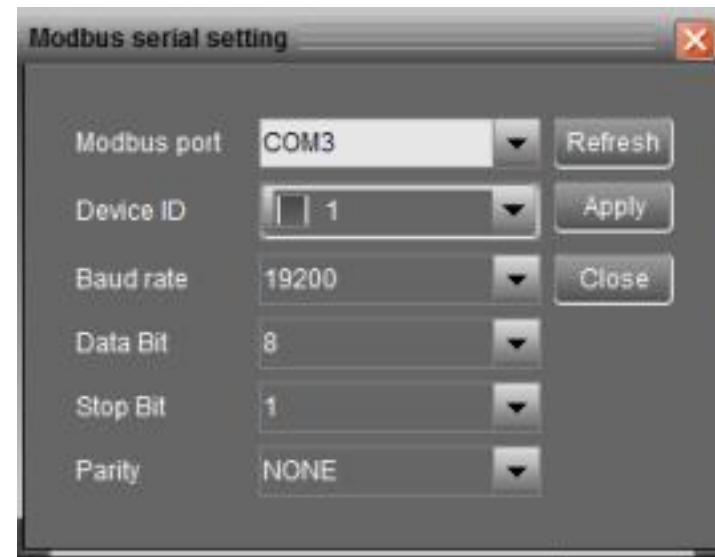
Please use supplied communication cable to connect to inverter and PC. Insert bundled CD into a computer and follow on-screen instruction to install the monitoring software. For the detailed software operation, please check user manual of software inside of CD.

5 . Parameter configuration in watchpower

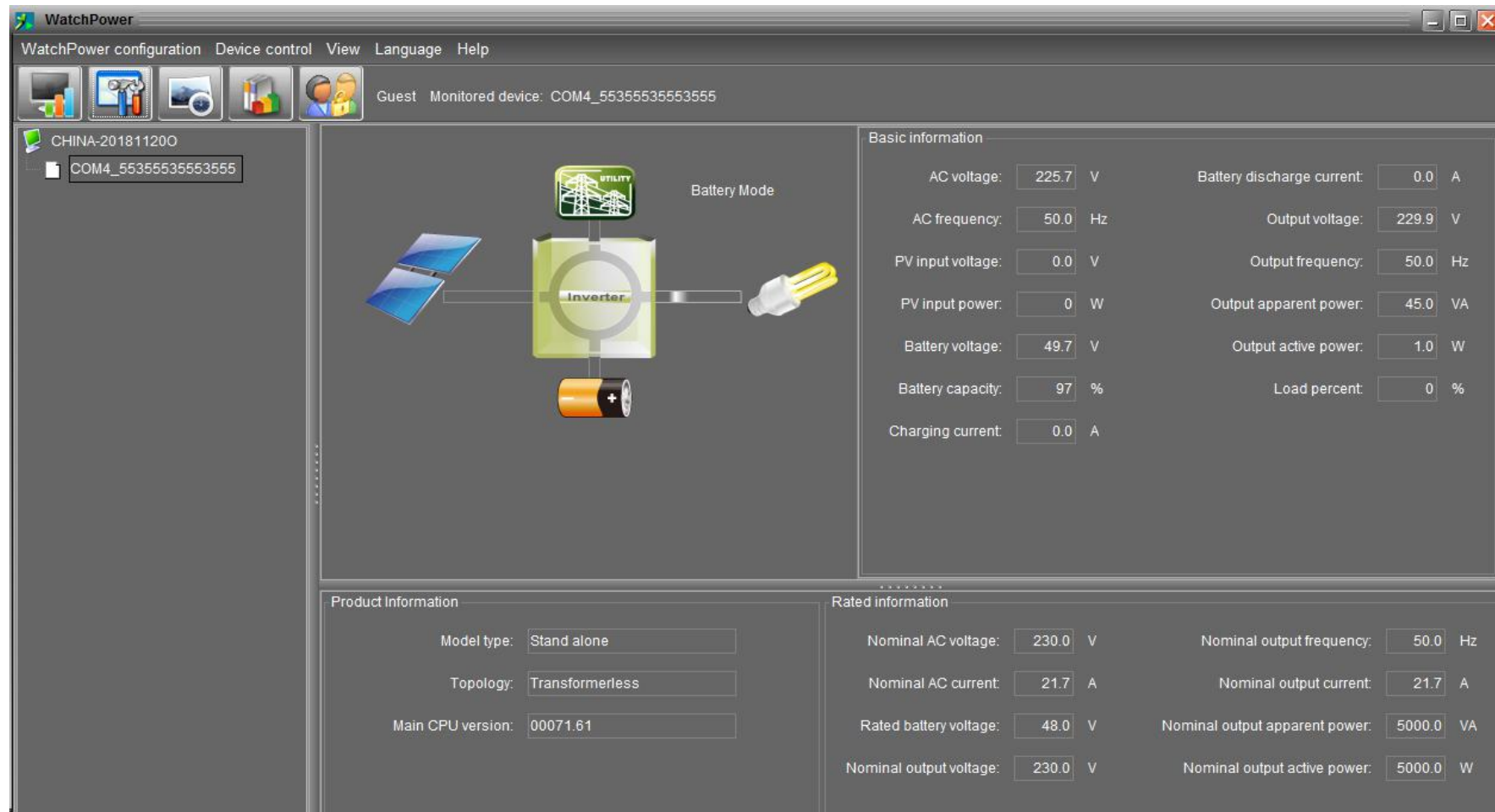
The setting parameters of the two Inverter types are basically the same. Charging current and working mode are set according to on-site requirements.



5.1 Run the “WatchPower.exe”, Then click “Modbus serial setting “,select the serial Port of the device connection in it.The Baud rate is 19200, the port name is from the Device Manager.



5.2 If the Basic information showed values, which means connect successfully



The screenshot displays the WatchPower software interface. The window title is "WatchPower" and the menu bar includes "WatchPower configuration", "Device control", "View", "Language", and "Help". The user is logged in as "Guest" and is monitoring a device with ID "COM4_55355535553555".

The interface is divided into several sections:

- Left Panel:** Shows the system name "CHINA-201811200" and the monitored device ID "COM4_55355535553555".
- Central Diagram:** A schematic diagram labeled "Battery Mode" showing a utility source, solar panels, an inverter, and a battery. The inverter is connected to a light bulb, representing a load.
- Basic information:** A table of real-time system parameters.
- Product Information:** Details about the inverter's configuration.
- Rated information:** Nominal specifications for the inverter.

Parameter	Value	Unit
AC voltage	225.7	V
Battery discharge current	0.0	A
AC frequency	50.0	Hz
Output voltage	229.9	V
PV input voltage	0.0	V
Output frequency	50.0	Hz
PV input power	0	W
Output apparent power	45.0	VA
Battery voltage	49.7	V
Output active power	1.0	W
Battery capacity	97	%
Load percent	0	%
Charging current	0.0	A

Parameter	Value
Model type	Stand alone
Topology	Transformerless
Main CPU version	00071.61

Parameter	Value	Unit
Nominal AC voltage	230.0	V
Nominal output frequency	50.0	Hz
Nominal AC current	21.7	A
Nominal output current	21.7	A
Rated battery voltage	48.0	V
Nominal output apparent power	5000.0	VA
Nominal output voltage	230.0	V
Nominal output active power	5000.0	W

5.3 Click “Device control” button to set the parameters as below or according to site conditions.

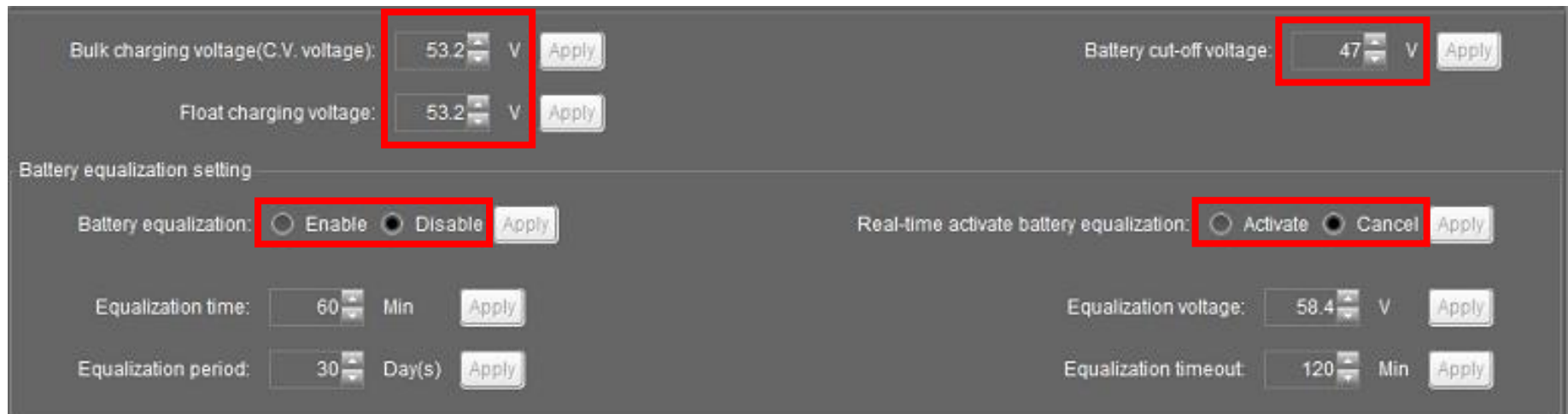
Buzzer alarm:	<input checked="" type="radio"/> Enable <input type="radio"/> Disable	Apply	Beeps while primary source interrupt:	<input checked="" type="radio"/> Enable <input type="radio"/> Disable	Apply
Backlight:	<input checked="" type="radio"/> Enable <input type="radio"/> Disable	Apply	LCD screen returns to default display screen after 1 min.:	<input checked="" type="radio"/> Enable <input type="radio"/> Disable	Apply
Overload auto restart:	<input type="radio"/> Enable <input checked="" type="radio"/> Disable	Apply	Solar power balance:	<input checked="" type="radio"/> Enable <input type="radio"/> Disable	Apply
Over temperature auto restart:	<input type="radio"/> Enable <input checked="" type="radio"/> Disable	Apply			

5.4 Max.charging current: = $N \times 20A$ (N=The battery Number in parallel). Max. charging current = utility charging current + solar charging current.

Charger source priority:	CSO	Apply	Back to grid voltage:	48.0	V	Apply
Output source priority:	Solar->Battery->Utility	Apply	Max. charging current:	20	A	Apply
Battery type:	AGM	Apply	Max. AC charging current:	40	A	Apply
Output Mode:	Single	Apply	Back to discharge voltage:	52.0	V	Apply
Bypass function:	Enable	Apply	Operation Logic:	Automatically(AUT)		Apply
Output frequency:	50	Hz	Apply			

In SBU or SUB mode, “Back to grid voltage” is recommended to set as 48 V, “Back to discharge voltage” is recommended to set as 52 V.

5.5 “Battery cut-off voltage” is recommended to set as 47 V, “C.V voltage” and “Float charging voltage” are recommended to set as 53.2V. Other parameters setting as below. Remember to click “Apply” button after changing parameters.



The screenshot shows a battery configuration interface with the following settings highlighted in red boxes:

- Bulk charging voltage (C.V. voltage): 53.2 V
- Float charging voltage: 53.2 V
- Battery cut-off voltage: 47 V
- Battery equalization: Enable Disable
- Real-time activate battery equalization: Activate Cancel

Other visible settings include:

- Equalization time: 60 Min
- Equalization period: 30 Day(s)
- Equalization voltage: 58.4 V
- Equalization timeout: 120 Min

6 . Definitions

A: Axpert VMIII

Charger source priority: To configure charger source priority	CSO	Solar energy will charge battery as first priority. Utility will charge battery only when solar energy is not available.
	S ∩ U	Solar energy and utility will charge battery at the same time.
	OSO	Solar energy will be the only charger source no matter utility is available or not.
Output source priority: To configure load power source priority	USB	Utility will provide power to the loads as first priority. Solar and battery energy will provide power to the loads only when utility power is not available.
	SUB	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 the loads at the same time.

<p>Output source priority:</p> <p>To configure load power source priority</p>		<p>Utility provides power to the loads only when any one condition happens:</p> <ul style="list-style-type: none"> - Solar energy is not available - Battery voltage drops to “low-level warning voltage” or the setting point in “voltage point back to utility source”.
	<p>SBU</p>	<p>Solar energy provides power to the loads as first priority.</p> <p>If solar energy is not sufficient to power all connected loads, battery energy will supply power to the loads at the same time.</p> <p>Utility provides power to the loads only when battery voltage drops to either “low-level warning voltage” or the setting point in “voltage point back to utility source”.</p>

B: Axpert King

<p>Solar energy priority: To configure solar energy priority for battery and load</p>	<p>SBL UCB</p>	<p>Solar energy charges battery first and allow the utility to charge battery.</p>
	<p>SBL UDC</p>	<p>Solar energy charge battery first and disallow the utility to charge battery.</p>
	<p>SLB UCB</p>	<p>Solar energy provides power to the load first and also allow the utility to charge battery.</p>
	<p>SLB UDC</p>	<p>Solar energy provides power to the load first and disallow the utility to charge battery.</p>
<p>Output source priority: To configure load power source priority</p>	<p>USB</p>	<p>Utility will provide power to the loads as first priority. Solar and battery energy will provide power to the loads only when utility power is not available.</p>

<p>Output source priority: To configure load power source priority</p>	<p>SUB</p>	<p>Solar energy provides power to the loads as first priority.</p> <p>If solar energy is not sufficient ,utility energy will supply power to the loads at the same time.Battery provides power to the loads only when solar and utility is not sufficient.</p>
	<p>SBU</p>	<p>Solar energy provides power to the loads as first priority.</p> <p>If solar energy is not sufficient to power all connected loads, battery energy will supply power to the loads at the same time.</p> <p>Utility provides power to the loads only when battery voltage drops to either “low-level warning voltage” or the setting point in “voltage point back to utility source”.</p>

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