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PCS Intelligent Assistant Operation Instructions

00.02


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Applicable projects	Intelligent Assistant	Responsible Department	Research & Development Department
Prepared by	Wang Pai	Date	
Reviewed by		Date	
Approved by		Date	

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Revision History					
Version	Date	Description of Revision	Author	Reviewed by	Approved by
00.01	December 23, 2024	First edition	Wang Pai		
00.02	January 6, 2025	Added instructions for the function of saving current parameters; modified version instructions for software of obtaining fault recording.	Wang Pai		

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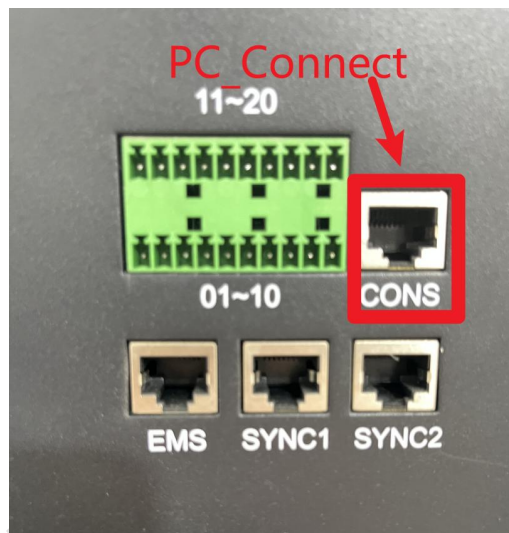
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1 Preparations

Prepare a network cable, USB-to-RS422 module, and refer to the appendix to form the intelligent assistant communication cable;

Connect the network port end of the intelligent assistant communication cable to the CONS port on the PCS panel, and the other end to the laptop. The network port location on the PCS panel is shown in the figure below:



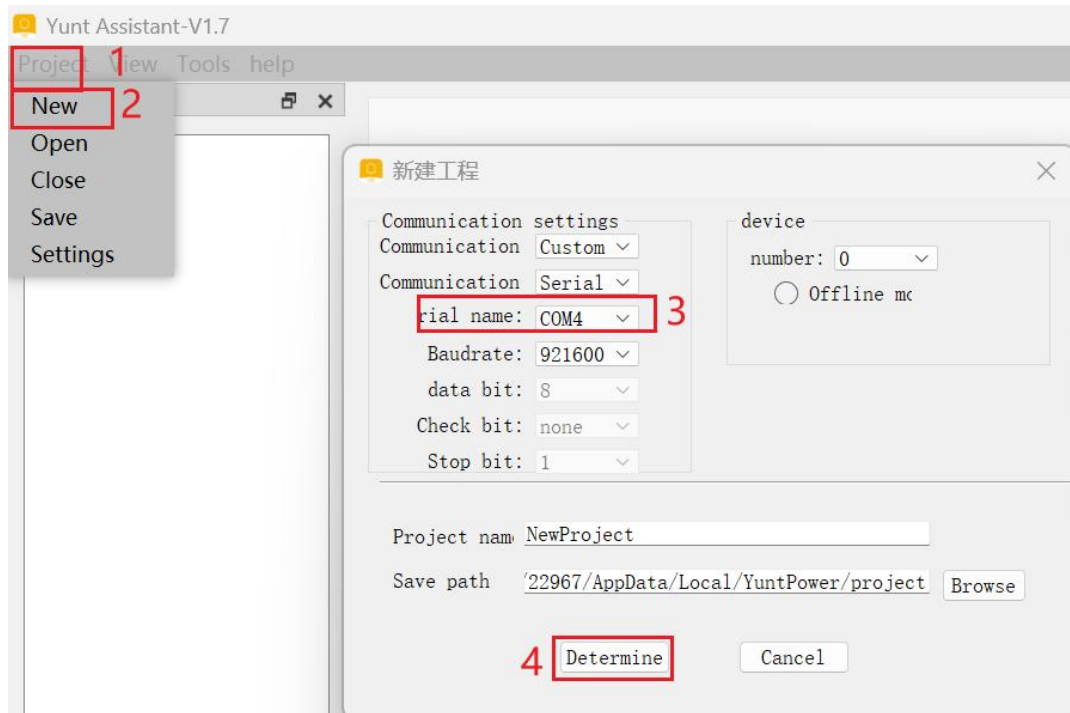
2 Connect PCS

- 1、 Double-click to open the PCS upper computer software VFDSstudio.exe

Qt5Widgets.dll	2024/8/14 12:06	应用程序扩展	5,534 KB
unins000.dat	2024/8/14 12:06	DAT 文件	132 KB
unins000	2024/8/14 12:06	应用程序	3,086 KB
VFDSstudio	2024/8/19 10:03	应用程序	1,122 KB

- 2、 Click "Project" -> "New", select the identified COM port number (check the port name as USB-SERIAL CH340 in the device manager), and then click "OK";

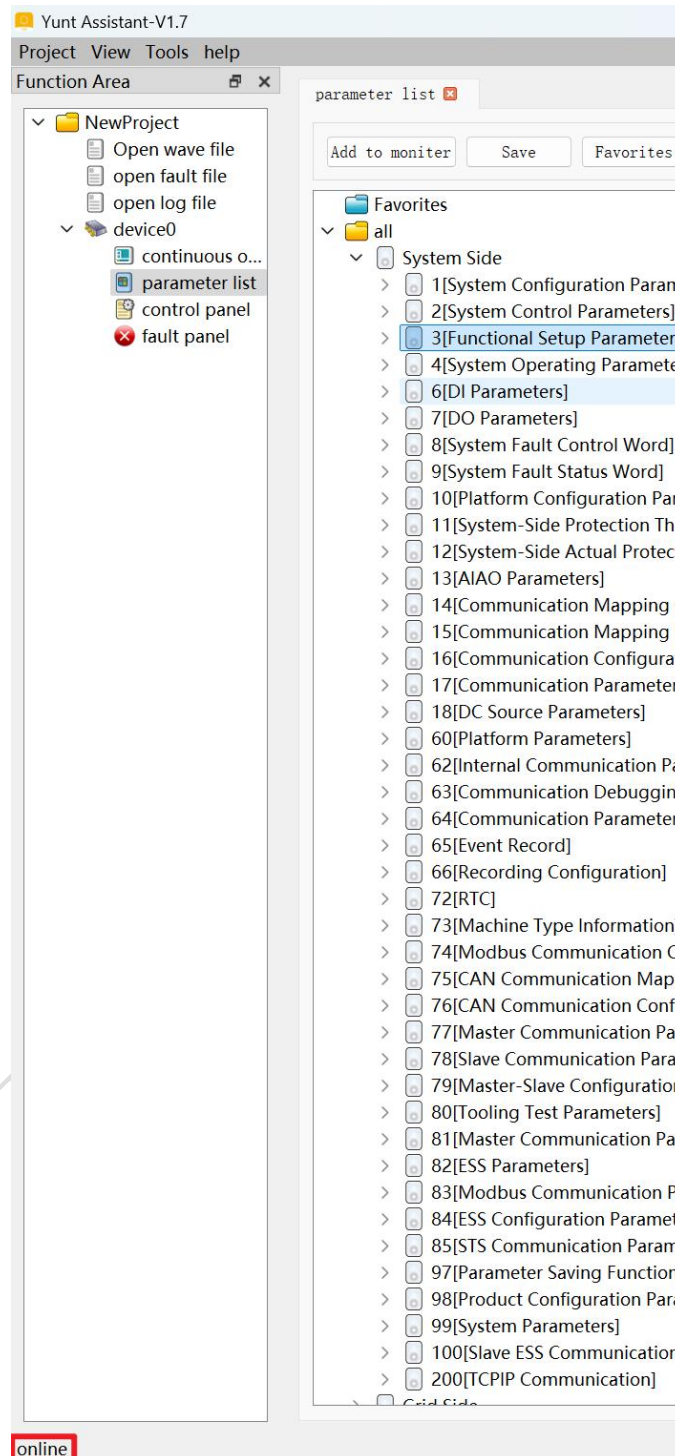
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You can see "Online" displayed in the lower left corner, indicating a successful connection with the PCS;

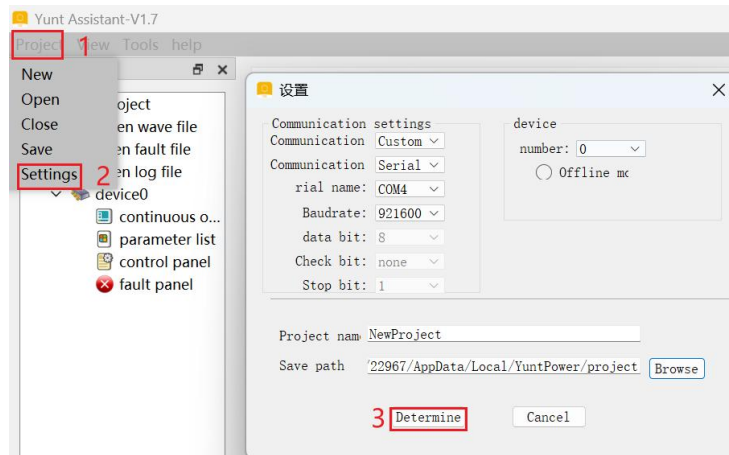
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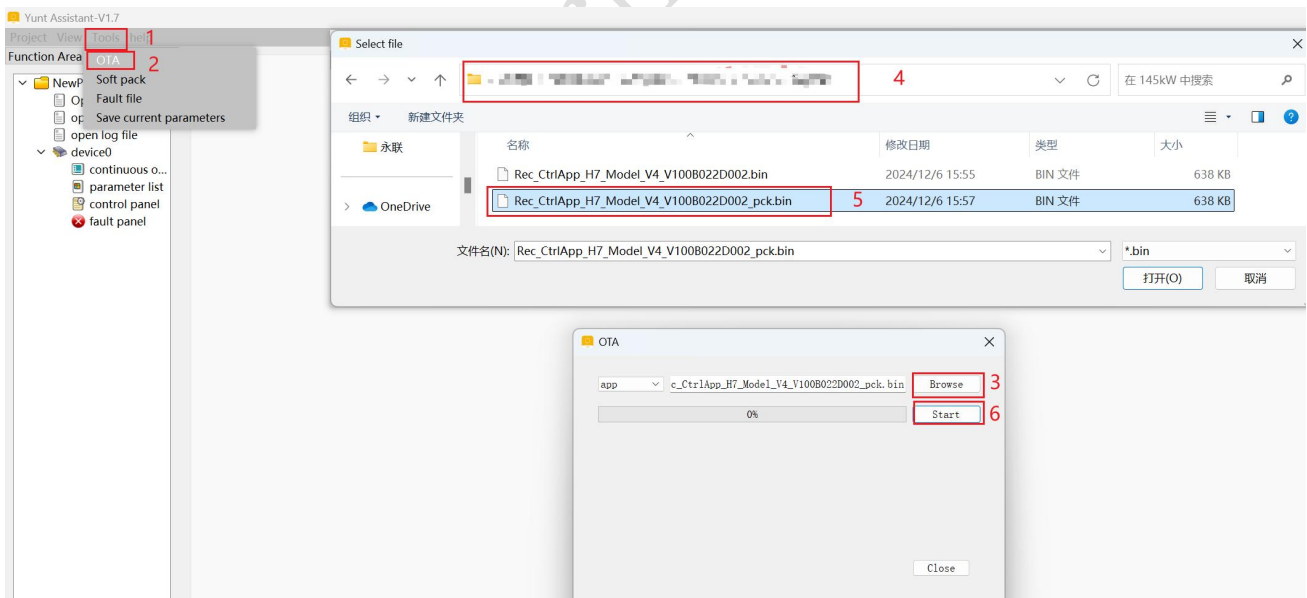
3、 If "Offline" is displayed, identify the causes: whether the driver software is installed; whether the PCS is plugged into a wrong port; whether a wrong COM number is selected, re-plug it; then click "Project" -> "Settings" to reconnect the PCS; "Online" will be displayed in the lower left corner, indicating a successful connection with the PCS.

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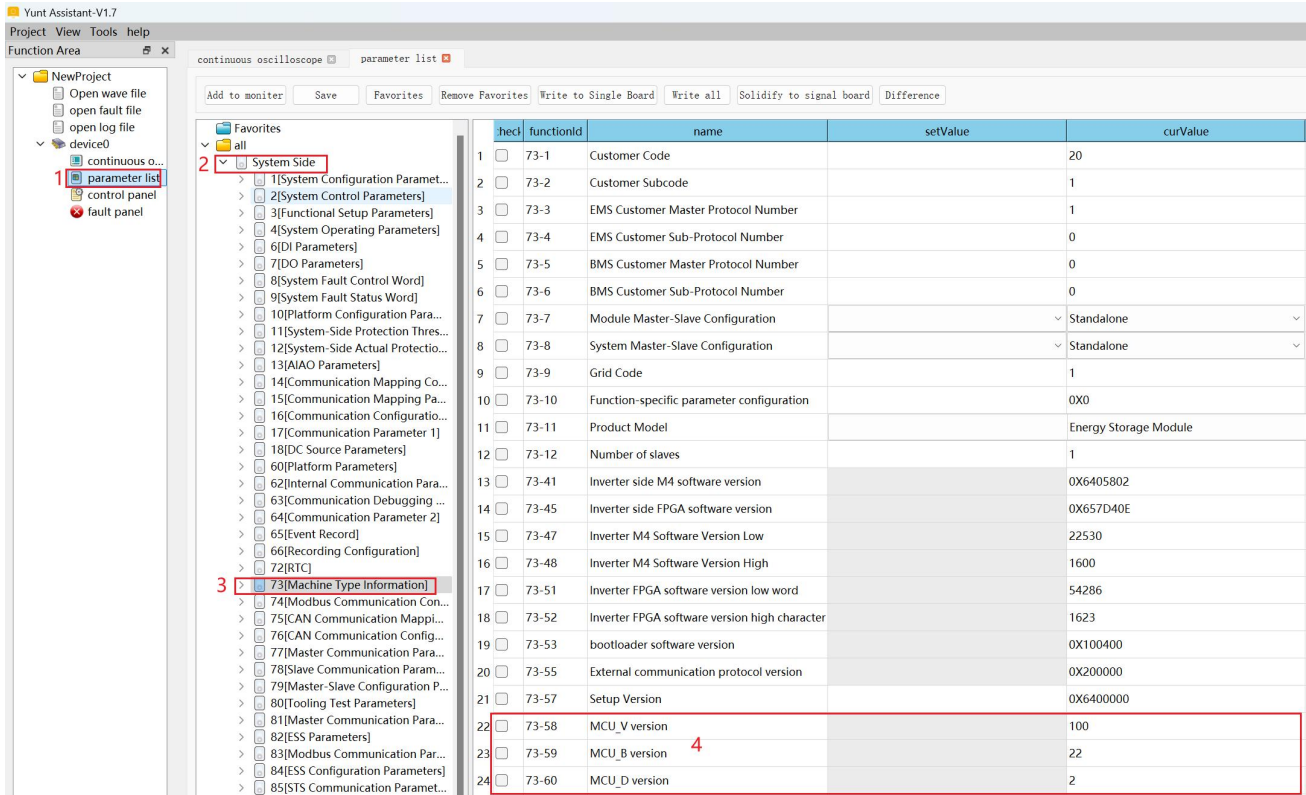


3 Upgrade PCS

- 1、 Confirm that the intelligent assistant is successfully connected to the PCS, and "Online" is displayed in the lower left corner; if offline, operate according to "2 Connect PCS";
- 2、 Click the Menu Bar "Tools" -> "OTA", find the software storage path, double-click the software file, and then click "Start" to start the software upgrade; wait and when the upgrade progress bar reaches 100%, click "Close" to close the OTA window and complete the upgrade;



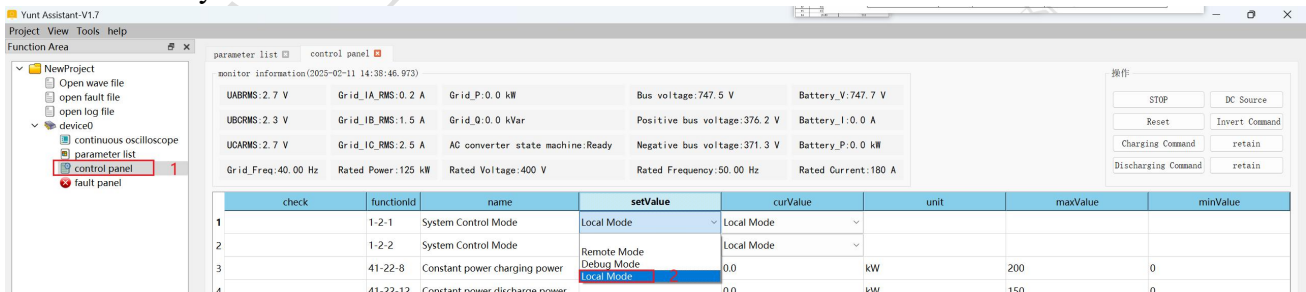
- 3、 After the upgrade is completed, the PCS will automatically restart, and the upper computer will display Offline. Reconnect the PCS according to Step 2.3.
- 4、 Check the software version, click "Parameter List" -> "System Side" -> "73 Model Information" and check that it is the required version;



4 Intelligent Assistant Controls PCS Operation


Click the control panel, and control of all PCS operations is executed here. Before operation, change the system control mode to "Near-end Control"

Intelligent assistant parameter writing: First set the value to be consistent with the current value, and then modify the set value.

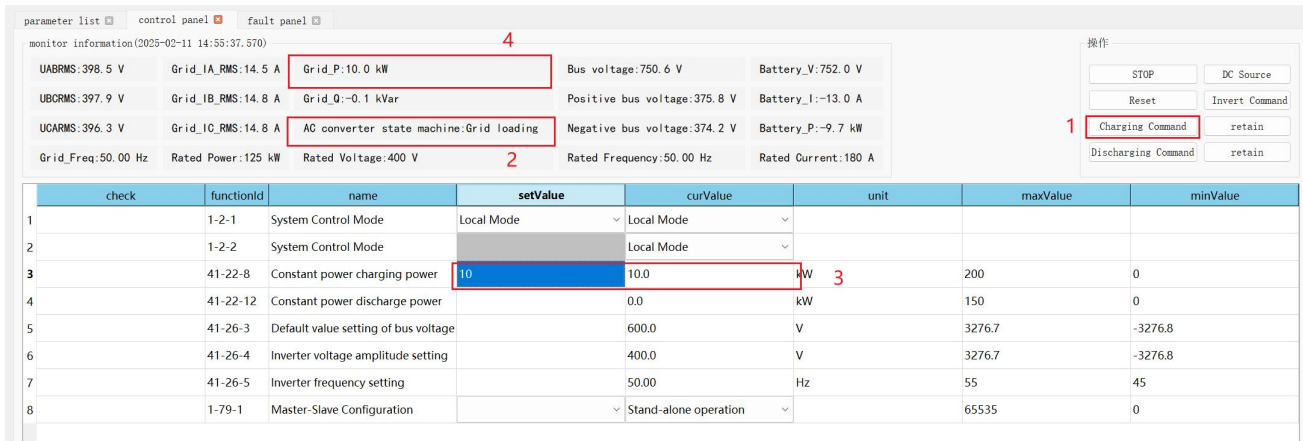


4.1 Grid-connected Charging and Discharging

- 1、 In the state of no PCS fault, start charging or discharging operation with one click through "Grid-connected Charging" or "Grid-connected Discharging";

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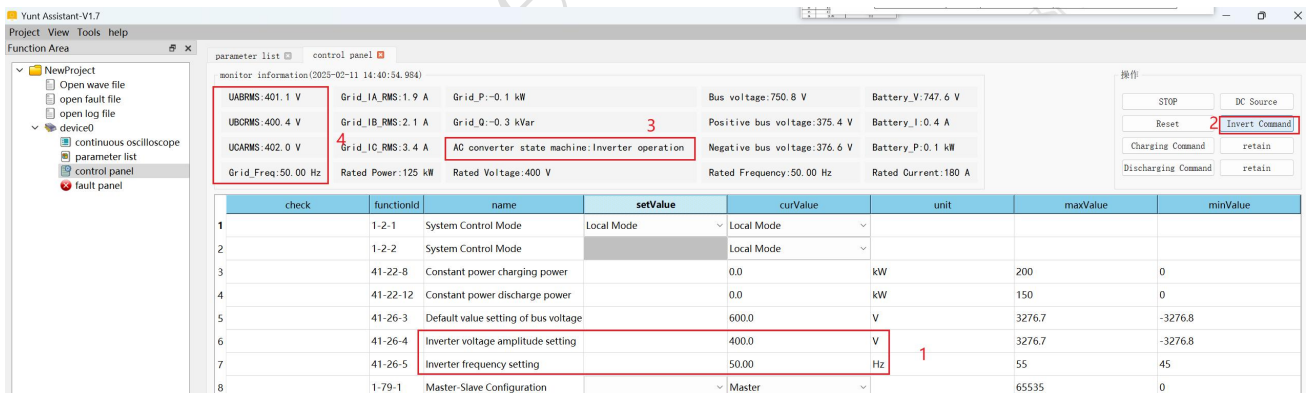
- 2、 Observe whether the "AC Converter State Machine" enters grid-connected loading;
- 3、 Issue power under "constant-power charging power" or "constant-power discharging power";
- 4、 Observe whether the "active power of the grid" is near the set value.



check	funcionid	name	setValue	curValue	unit	maxValue	minValue
1	1-2-1	System Control Mode	Local Mode	Local Mode			
2	1-2-2	System Control Mode	Local Mode	Local Mode			
3	41-22-8	Constant power charging power	10	10.0	kW	200	0
4	41-22-12	Constant power discharge power		0.0	kW	150	0
5	41-26-3	Default value setting of bus voltage	600.0		V	3276.7	-3276.8
6	41-26-4	Inverter voltage amplitude setting	400.0		V	3276.7	-3276.8
7	41-26-5	Inverter frequency setting	50.00		Hz	55	45
8	1-79-1	Master-Slave Configuration		Stand-alone operation		65535	0

4.2 Off-grid Startup

- 1、 Set the grid voltage and frequency in "Inverter voltage amplitude setting" and "Inverter frequency setting";
- 2、 Click "Off-grid inverter";
- 3、 Wait for the "AC converter state machine" to enter "Inverter operation";
- 4、 Observe whether the grid voltage/frequency is near the set value.

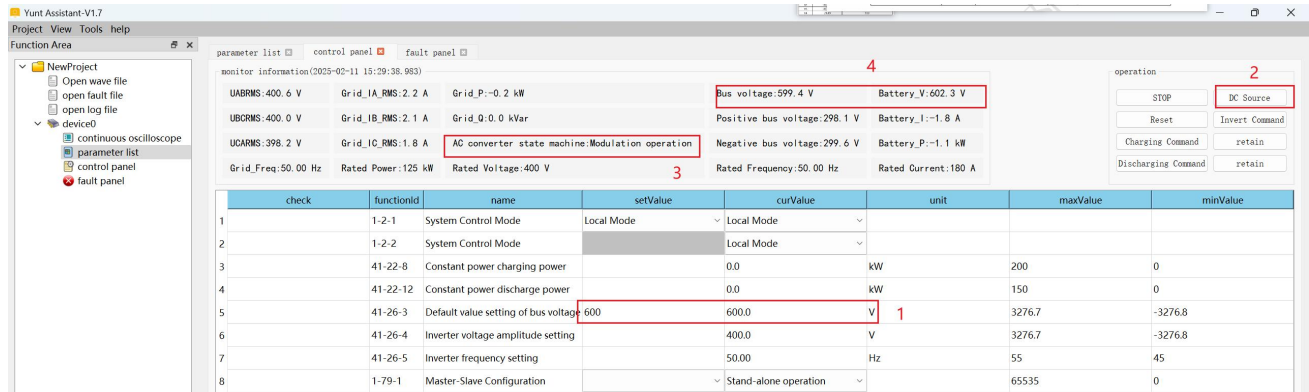


check	funcionid	name	setValue	curValue	unit	maxValue	minValue
1	1-2-1	System Control Mode	Local Mode	Local Mode			
2	1-2-2	System Control Mode	Local Mode	Local Mode			
3	41-22-8	Constant power charging power		0.0	kW	200	0
4	41-22-12	Constant power discharge power		0.0	kW	150	0
5	41-26-3	Default value setting of bus voltage	600.0		V	3276.7	-3276.8
6	41-26-4	Inverter voltage amplitude setting	400.0		V	3276.7	-3276.8
7	41-26-5	Inverter frequency setting	50.00		Hz	55	45
8	1-79-1	Master-Slave Configuration		Master		65535	0

4.3 DC Source Startup

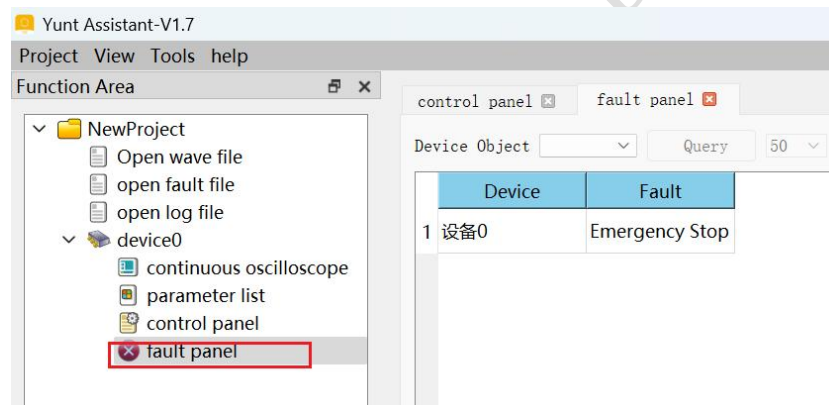
- 1、 Set the DC side voltage in "Bus voltage default value setting";
- 2、 Click "DC source startup"
- 3、 Observe the "AC converter state machine" to enter the "Modulation operation";

4、 Observe whether the battery voltage and bus voltage are near the set values



5 Fault Viewing

Click the fault panel to view the current fault.




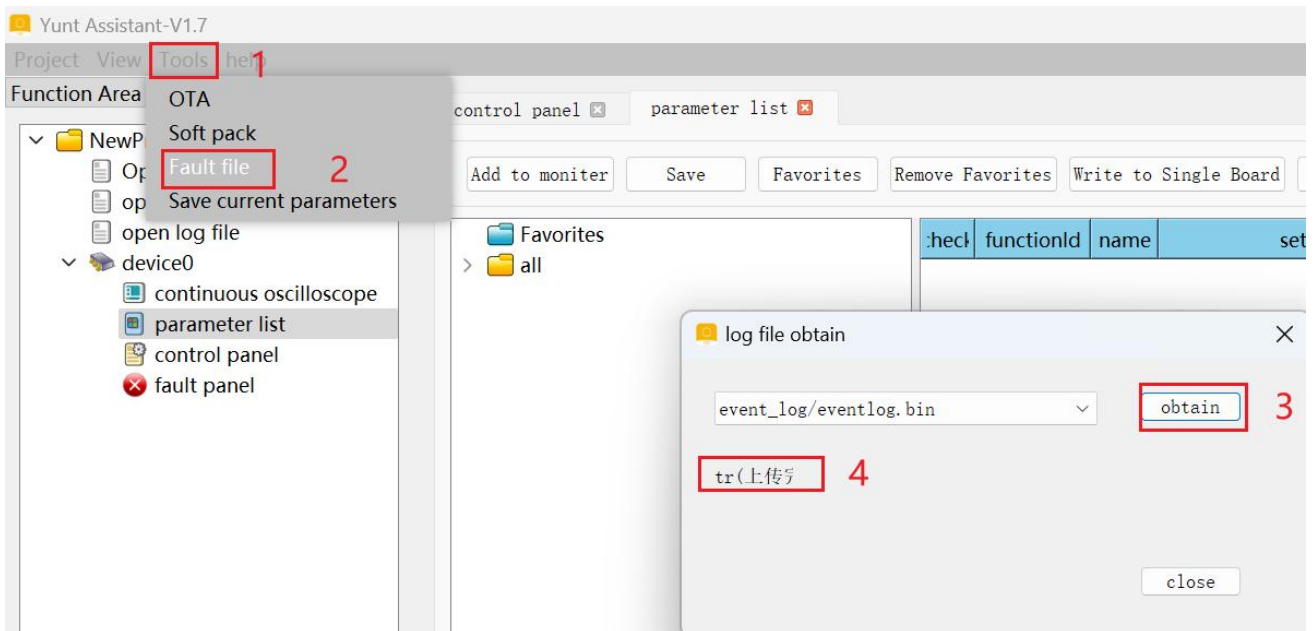
6 Obtaining of Fault Event Words and Fault Recording

This feature is available in software versions above 300.005.015/100.20.015.

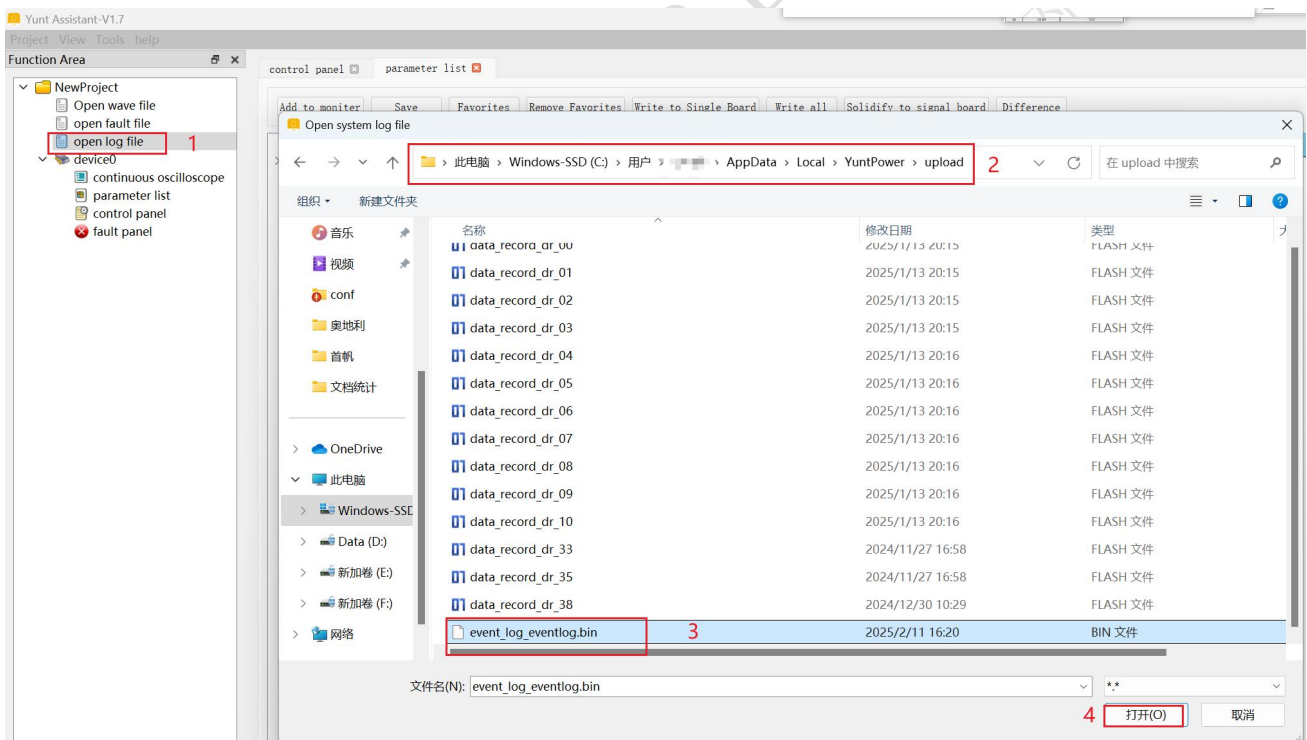
6.1 Event Word Obtaining and Viewing

- 1、 Power on the PCS;
- 2、 Click "Tools" -> "Fault file" -> "Obtain", wait and when "tr (upload completed)" is displayed, the acquisition is completed;
- 3、 The file is stored in the "C:\Users\xxx\AppData\Local\YuntPower\upload" folder;

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4. Click "Open log file", open the file storage path, click the ".bin" suffix file, and click "Open" to view the event words.



序号	来源	日期和时间	级别	事件ID	名称
1	2	2019/08/01 12:56:09		2009	System powered on
2	2	2019/08/01 12:56:13		2610	Solidify all parameters
3	2	2019/08/01 12:56:14		2613	Solidify all user parameters
4	2	2019/08/01 12:56:24		2009	System powered on
5	2	2019/08/01 10:00:00		2009	System powered on
6	2	2019/08/01 10:00:00		2009	System powered on
7	2	2019/08/01 10:00:00		2009	System powered on
8	2	2019/08/01 10:00:00		2009	System powered on
9	2	2019/08/01 10:00:00		2009	System powered on
10	2	2019/08/01 10:00:00		2009	System powered on
11	2	2019/08/01 10:00:00		2009	System powered on
12	2	2019/08/01 10:00:00		2009	System powered on
13	2	2019/08/01 11:04:41		2010	Local control

6.2 Fault Recording Obtaining and Viewing


The fault recording is used to record the waveform data 100ms before and after the fault moment. It takes 2~3S to save, during which the PCS cannot be powered off.

1. Power on the PCS
2. Click "Tools" -> "Fault file" -> Pull down to select the ".flash" suffix file -> "Obtain", wait and when "tr (upload completed)" is displayed, obtain one data;
3. Repeat Step 2 to obtain the subsequent several data until "Upload error" is displayed, indicating that all data have been obtained;
4. The files are stored in the "C:\Users\xxx\AppData\Local\YuntPower\upload" folder.

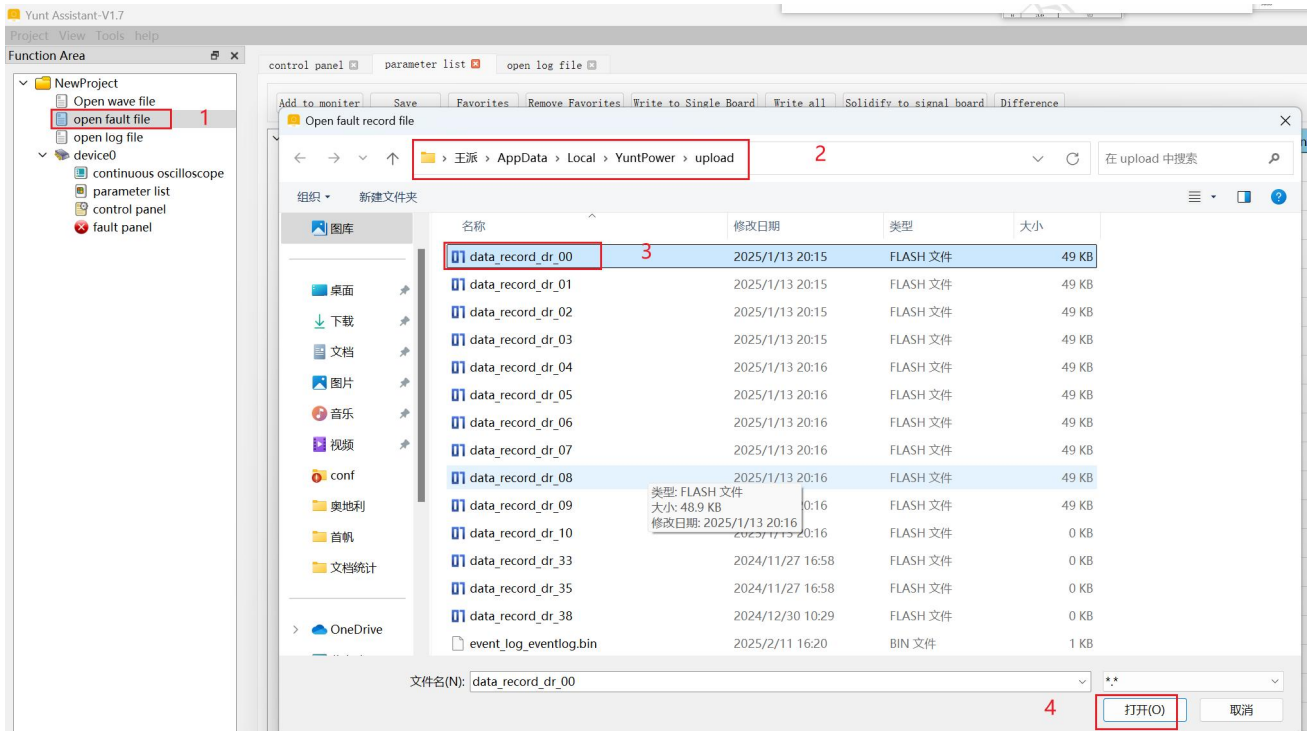
The screenshot shows the 'Tools' menu with 'Fault file' highlighted. A 'log file obtain' dialog box is open, showing a list of files to be obtained. The files listed are:

- event_log/eventlog.bin
- event_log/eventlog.bin
- data_record/dr_outline_data
- data_record/dr_00.flash
- data_record/dr_01.flash
- data_record/dr_02.flash
- data_record/dr_03.flash
- data_record/dr_04.flash
- data_record/dr_05.flash
- data_record/dr_06.flash
- data_record/dr_07.flash

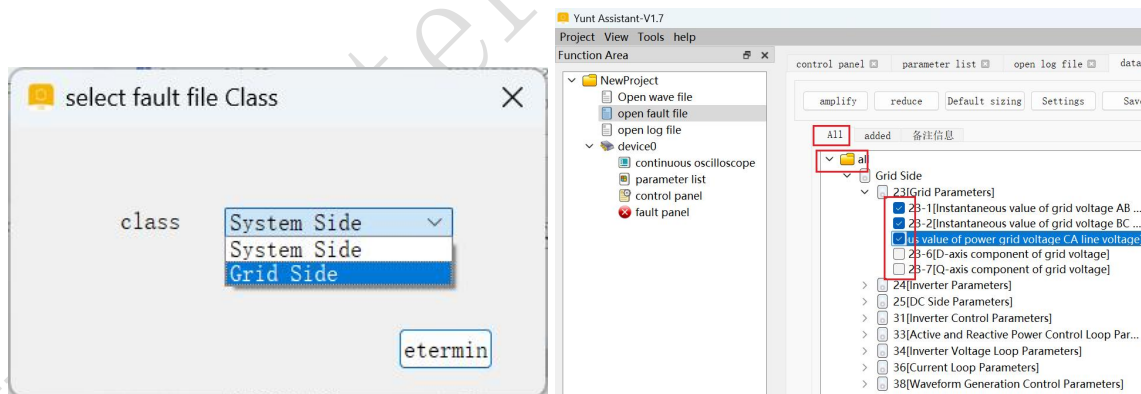
The 'obtain' button is highlighted in the dialog box.

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5. Click "Open fault file", open the file storage path, click the ".flash" suffix file, and then click "Open".



6. In the pop-up interface, select "Grid Side" -> "OK", and in the pop-up interface, click according to the pictures below, and check the parameters that need to be observed.




7 Saving of Current Parameters

Click "Tools" -> "Save current parameters" in sequence, and the name can be modified. Click "OK", wait and when the progress bar is completed, obtaining is completed.

The screenshot shows the Yunt Assistant V1.7 interface. On the left, a 'Function Area' tree includes 'Save current parameters' (marked with a red box and '2'). The main window displays 'monitor information (2025-02-11 17:01:38.745)' with various electrical parameters. Below this is a table with columns: check, functionId, name, setValue, and curValue. A 'current value save' dialog box is open in the foreground, showing 'File name: current_parm.pro' and 'Save path: 慧助手/MonitorPCS/trunk/VFDSstudio_PCS'. The 'OK' button in the dialog is highlighted with a red box and marked with a red '3'.

check	functionId	name	setValue	curValue
1	1-2-1	System Control Mode		Remote Mode
2	1-2-2	System Control Mode		Remote Mode
3	41-22-8	Constant power charging power		0.0
4	41-22-12	Constant power discharge power		0.0
5	41-26-3	Default value set		
6	41-26-4	Inverter voltage		
7	41-26-5	Inverter frequency		
8	1-79-1	Master-Slave Co		

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8 Appendixes

8.1 USB to RS422 Module User Instruction

8.1.1 USB to RS422 Module



Purchase link (choose FT232 USB to 485/422, or CH340 USB to 485/422):

[USB to RS232/485/422/TTL Industrial Grade Serial Port Converter Communication Module WIN10/7/8/XP - Taobao \(taobao.com\)](#)

8.1.2 Wiring Instructions

Cable selection: Network cable with T568B standard wiring sequence

The CONS interface of the energy storage inverter uses RJ45, and the wiring sequence is as follows:

Item	Signal	Color
1	RS422 A	White-Orange
2	RS422 B	Orange
3	RS422 Y	White-Green
4	Reserved	Blue
5	Reserved	White-Blue
6	RS422 Z	Green
7	Reserved	White brown

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8	Reserved	Brown
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USB to 485/422 module wiring sequence:

Signal	Color
T+	White-Green
T-	Green
R+	White-Orange
R-	Orange
GND	Dangling



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