



# 用户手册

### Household energy storage lithium battery





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## Safety Guide

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## Δ

The work and maintenance of energy storage batteries should be left to professionals. Please do not attempt to repair them. Open and remove batteries or cells.



The battery core contains highly corrosive electrolyte. If the battery core is damaged or leaks,

Please handle with care to prevent contact with skin or eyes.



The battery terminals should be considered to be live at all times, so do not place metal tools or otherwise work on the terminals. Do not penetrate, throw or hit the battery in any way. Do not short-circuit or reverse the positive and negative terminals of the battery.



Fire Hazard: Do not lower the battery voltage below the specified minimum battery voltage as this will increase the risk of fire. Do not attempt to charge a swollen or damaged battery. If a fire occurs, use a carbon dioxide or dry powder fire extinguisher. Class D fire extinguishers are not suitable.



Used batteries cannot be recycled or discarded as ordinary garbage. Please dispose of used batteries in accordance with local regulations.

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#### 1: Battery introduction



Battery pin diagram

1 Positive Terminal	<b>8</b> RS485-2
<ol> <li>Negative Terminal</li> </ol>	9 ON/OFF Switch
3 Handle	10 LCD Display
Capacity Indicator	1 DRY
⑤ Alm Run	12 ADDR
6 RS232	13 RST
7 RS485-1 CAN	(4) Circuit Breaker

#### **2:** Battery settings

#### 2.1: Overview

#### 2.1.1: Battery power on and off

The battery can be turned on by pressing the battery switch once, and the battery can be turned off by pressing the battery switch again.

#### 2.1.2: CAN communication

The inverter GX-BMS-Bus network port is connected to the battery CAN-Bus network port to realize communication between the battery and GX, and then the GX-VE-Bus network port is connected to the inverter GX-VE-Bus network port to realize the battery and inverter. communication.



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Function	Victron BMS-Bus (GX)	Battery CAN-Bus
GND	Pin3	Pin2
CAN-H	Pin7	Pin4
CAN-L	Pin8	Pin5



#### 2.1.3: dry contact

When the battery alarms or protects, the dry contact will output a DC power supply equal to the current voltage of the battery, but the current is small, and an external warning light or alarm can be connected.

.1.1	Pin1	Dry contact positive
1 2	Pin2	Dry contact negative

#### 2.1.4: Network port introduction

The RS232 network port is used for host computer communication, the RS485-1 network port is used for inverter communication, the CAN network port is used for inverter communication, and the RS485-2 network port is used for battery parallel communication.



#### 2.1.5: ADDR introduce



addraaa	DACK Number	DIP SWitch position				
auuress	PACK NUMBER	1	2	3	4	
0	PACK1	OFF	OFF	OFF	OFF	
1	PACK2	ON	OFF	OFF	OFF	
2	РАСКЗ	OFF	ON	OFF	OFF	
3	PACK4	ON	ON	OFF	OFF	
4	4 PACK5		OFF	ON	OFF	
5	5 PACK6		OFF	ON	OFF	
6	6 PACK7		ON	ON	OFF	
7	7 PACK8		ON	ON	OFF	
8	8 PACK9		OFF	OFF	ON	
9	9 PACK10		OFF	OFF	ON	
10	10 PACK11		ON	OFF	ON	
11	PACK12	ON	ON	OFF	ON	
12	PACK13	OFF	OFF	ON	ON	



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13	PACK14	ON	OFF	ON	ON
14	PACK15	OFF	ON	ON	ON
15	PACK16	ON	ON	ON	ON

#### 2.2: Introduction to battery paralleling



Circulation wiring + daisy link wiring diagram

#### 2.2.1: Maximum number of batteries in parallel

Up to 8 batteries can be connected in parallel. Each battery needs ADDR to

set the address. Please refer to 2.1.5 for specific methods.

#### 2.2.2: Battery parallel communication

When the batteries are paralleled, information transmission is realized by connecting RS485-2. The battery RS485-2 connection can be connected through a standard network cable. When the number of parallel batteries reaches 8, it is recommended to use a daisy chain connection to reduce the risk of information loss.



#### 2.2.3: Power line specifications

P+P-parallel power line wire specifications and lengths need to be consistent, and the power line model needs to match the maximum power of the inverter.

5KW Inverter	10KW Inverter	15KW Inverter
6AWG	4AWG	2AWG

#### 3: Victron Inverter GX settings

#### **3.1:Victron Inverter GX device display battery information**

When the battery communicates successfully with the Victron inverter, the

battery SOC, voltage, operating current, and power will be displayed at the

battery icon on the GC display.



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#### 3.22 DVCC

Enter the DVCC settings, turn on the DVCC switch, turn on the limit charging current, and set the maximum charging current to 50A/each battery. The rest of the settings have reasonable parameters uploaded by BMS, so no settings are required.

< DVCC	হ্ন 08:38
DVCC	Forced on
Limit charge current	
Maximum charge current	100A
SVS - Shared voltage sense	Forced off
STS - Shared temperature sense	Forced off
SCS - Shared current sense	
<u> 내</u> Pages ^	<b>≡</b> Menu

#### 4: Victron Inverter settings

#### 4.11 Logn in Victron inverter background export ESS

After exporting the ESS application, install ESS according to the application prompts.





#### 4.2: General Tab

🐿 VE Configure 3 (Quattr	9 48/5000/70-2x100 ) — 🛛	⊐ ×
File Port selection Target	Defaults Options Special Help	
-	General Grid Inverter Charger Virtual switch Assistants	
Uuatto Freq. DutHz UDutV IDutA Freq. InHz UMainsV IMainsV Udc rippleV IdcA SoC Ignore AC aux. relay	System frequency         ⊙ 50Hz       60Hz         Shore limit         AC1 input current limit       50.0       A       ✓ Overruled by remote         (priority)         AC2 input current limit       16.0       A       ✓ Overruled by remote         Dynamic current limit       16.0       A       ✓ Overruled by remote         Dynamic current limit       16.0       A       ✓ Overruled by remote         External current sensor connected (see manual)       ✓       Enable battery monitor         State of charge when Bulk finished       95.0       ≈         Battery capacity       200       Ah         Obarge efficiency       0.97	
<u>G</u> et settin		
Victron Energy	ge Changes require reset	

#### 4.3: Grid Tab

The power grid setting interface can set the power grid code of the country where it is located and some power grid related parameters. Note: The National Grid code needs to be set before using ESS mode. Please read the software prompts carefully. Once the National Grid code is set, it cannot be modified or revoked. Please pay attention! (PS: If domestic users want to use ESS mode, they can set the grid code to UK)

WE Configure 3 (MultiPlus 4	18/3000/35-2x50) — 🗆 🗙
File Port selection Target De	efaults Options Special Help
	General Grid Inverter Charger Virtual switch Assistants
MultiPlus	Grid code selection
	Country / grid code standard
	Other: not compliant to any grid code standard
	Loss Off Mains (LOM) detection LOM detection AC input 1 Type B (safe) <b>v</b> <b>Note:</b> Click here for more info on LOM.
	Transfer switch
	Accept wide input frequency range (45-65 Hz)
	AC low disconnect 195 V AC high connect 260 V
((((1))))))))))))))))))))))))))))))))))	AC low connect 202 V AC high disconnect 265 V
	UPS function
Victron Energy	
	1 Changes require reset



#### 4.4: Inverter Tab

- 1: The inverter AC output voltage is set according to the local power grid.
- 2: DC input shutdown voltage is set to 46V
- 3: DC input shutdown and restart voltage setting 51.2V
- 4: DC low voltage alarm is set to 50V
- 5: Low SOC shutdown set to 10%

#### 6: Low SOC shutdown restart set to 15%

N vil	E Configure 3	(Quattro	48/5000/	70-2x100)							×
File	Port selection	Target	Defaults	Options	Special	Help					
File Qua	Port selection attro Freq. Out UOut IOut Freq. In UMains IMains Udc ripple Idc SoC Ignore AC aux. relay	Target          Hz          V          A          X          X          X          X          X          X          X          X          X          X          X          X	Defaults Ger Ir D D D D	Options meral Grid nverter outpu IV Ground IV input low s IC input low s	Special Inverter t voltage relay shut-down estart ore-alarm estart after when load when load	Help Charger 230 V 48.00 52.00 49.00 short-circu lower than 12 V ave	Virtual swi	Itch Assista Assist curre hut-down on low shut-dow low restart D-2 safety) start level.	Ints   IntAssist - Int boost SOC	fector 2.0	
Victor		K,B (		C searc	eh mode require re	set	_/ \	/ # 18#	_/ \	J	0



#### 4.5: Charge Tabe

Set battery type to Lithium battery

Absorption voltage is set to 55.5V

Float voltage is set to 55V

Note: The absorbed voltage needs to be less than the maximum charging voltage of the BMS uploaded battery, otherwise the inverter will only charge the battery with a small current.

ዄ VE Configure 3 (MultiP	Plus-II 48/5000/70-50 S/N: HQ2238NHQQ — 🗆 🗙
<u>File</u> Port selection <u>T</u> arg	et <u>D</u> efaults Options Special <u>H</u> elp
MultiPlus-II	Grid Inverter Charger Virtual switch Assistants ↓ ✓ Enable char: Weak AC in: Stop after excessive ✓ Lithium batter Configured for VE. Bus Charge curFixed Absorption vo 55.50 V Repeated absorption 1.00 Hr Float voltage 55.00 V Repeated absorption 7.00 Days Charge curren 70 A Absorption time 1  Hr Stop charger -20.5 deg C
Victron Bn	



#### 4.6: Assistant tab (a)

If VS mode is used, Assistant mode cannot be used

NE Configu	ure 3 (MultiPlus 48/3000/35-2x50) —						
File Port sele	ection Target Defaults Options Special Help						
MultiPlus	General Grid Inverter Charger Virtual switch Assistants						
Multinus	😼 ESS (Energy Storage System) - 🗆 🗙						
Battery system Please select your system							
	<ul> <li>System uses OPzS or OPzV batteries</li> <li>System uses Gel or AGM batteries</li> <li>System uses LiFePo4 batteries with a VE.Bus BMS</li> <li>System user LiFePo4 batteries with a two sizes IBMC</li> </ul>						
	System uses LiFePo4 with other type BMS (This can be either a BMS connected via CAN bus or a BMS system in which the batteries are protected from high/low cell voltages by external equipment.)						
	Cancel << >>	3					
((()))	Start assistant Save assistant Delet	e assistant					
	Summary Load assistant						
	Dhanges require reset	O h					

#### 4.7: Assistant tab (b)

NE Configur	e 3 (MultiPlus 48/3	000/35-2x50)				_		$\times$
File Port sele	tion Target Defau	lts Options	Special H	lelp				
러금 MultiPlus		General Grid Assistant Config	Inverter (	Charger Virtu stant Tools	al switch A	Assistants		
		-Assistant Setu	ю 1	••• ·×`				
	😼 ESS (Energy Stora	ge System)			-		<	
	Battery capacity Please enter the correct battery capacity.							
	The battery capacity of the system is Ah.							
	🗙 Cano	el	<<		>>		1	
((()))		Start ass	sistant	Save a:	ssistant	Del	ete assistant	
Victron Energy		Summ	hary	Load as	ssistant	]		
		() Changes r	equire rese	t			63	n,

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#### 4.8:Assistant tab (c)

NE Configu	re 3 (MultiPlus 48/3000/35-2x50)	_				
File Port sele	ction Target Defaults Options Special Help					
3년 MultiPlus	General Grid Inverter Charger Virtual switch Assistan	ts				
	🐿 ESS (Energy Storage System) -	×				
	VEConfigure battery type selection Some VEConfigure settings do not (exactly) correspond with the battery default settings for Li-lon. Would you like the assistant to change the default battery type in VEConfigure? (If you decide to let the assistant change the battery type, a summary of the changed settings will be displayed when the assistant is finished.)					
	<ul> <li>Do not change battery type</li> <li>Change battery type as suggested</li> </ul>					
	X Cancel					
	Start assistant Save assistant Load assistant	Delete as	sistant			
	Changes require reset		Q h,			

#### 4.9: Assistant tab (d)

ዄ VE Configu	re 3 (MultiPlus 48/3000/35-2x50)	_		$\times$		
File Port sele	ction Target Defaults Options Special Help					
212 212	📽 ESS (Energy Storage System) — 🗆	×				
MultiPlus	-					
	Sustain voltage When batteries are left in a deep discharged state during a prolonged period, there is a severe chance that they will be damaged. To prevent this, the sustain mechanism will kick in and keep the batteries at a minimum voltage by charging them with a small current whenever necessary. For more info, refer to the controlling depth of discharge chapter of the Energy Storage manual		↑ I			
	Sustain voltage 50.00 V.					
	X Cancel << >>		]			
Victron Energy	Start assistant Save assistant D Summary Load assistant	)elete a:	ssistant			
	Changes require reset		9	w,		



#### 4.10: Assistant tab (e)

💁 VE Configu	🕸 ESS (Energy Storage System)	-		× 🗆 ×		
File Port sele	Port set MultiPlus MultiPlus MultiPlus MultiPlus MultiPlus MultiPlus MultiPlus MultiPlus MultiPlus More will normally be no need to adjust the curve used for this! Just accept below values which are already optimized for the selected battery type. In rare cases it might be advantageous to modify the curve. This can be done by changing the values below. Mote: * Because dynamic cut-off is used, the "DC input low shut-down" related parameters in VEConfigure are ignored. 0.005 C = $47.00$ V 0.25 C = $47.00$ V 0.7 C = $47.00$ V 0.7 C = $47.00$ V					
	X Cancel <<	>>		3		
Victron Energy	Start assistant Save	assistant assistant	De	elete assistant		
	() Changes require reset			1 h		

#### 4.11: Assistant tab (f)



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