Dyness battery and Victron inverter Setup

Check List:

Dyness B4850 module*4 sets Power cable*1 pair Parallel cable*3 pair BAT-BAT communication cable*3 PCS Battery-Inverter Communication cable*1PCS Inverter-CCGX Communication cable*1PCS Victron MultiPlus 48V 5KW Victron Color Control GX Victron MPPT(solar charger)

Before start, make sure battery and inverter size match.

Follow Dyness user manual to check details, it is recommended to use battery in 1: 2 configuration.

In our case now, 5kW inverter connects to 10kWh battery.

Step 1 : Cable connect in inverter

Keep both inverter and battery completely off.

Connect power cable and Inverter-CCGX Communication cable to inverter firstly.

This comm cable from inverter RJ45 port to CCGX VE.Bus port. It's a standard cable that PIN sequence is T-568B on the 2 sides.

12345618								12345678
12345678			-		involtor			12345678
2010010	PIN	Color	Definition		PIN	Color	Definition	FRARAAAAF
HEFEFFF	1	Orange/white	485_A		1	Orange/white	485_A	REFERE
	2	Orange	XGND		2	Orange	XGND	
	3	Green/white	485_B		3	Green/white	485_B	
	4	Blue	CANH		4	Blue	CANH	
	5	Blue/white	CANL		5	Blue/white	CANL	
	6	Green	X+5V		6	Green	NC	
	7	Brown/white	XIN		7	Brown/white	NC	
	8	Brown	NC		8	Brown	NC	

Dyness battery package not include this cable, need customer to make it.



Step 2: Modules in parallel connection

Connecting the parallel cable and comms cable between module and module.Note the Bat-Bat comms cable is from the master CAN OUT to slave1 CAN IN,slave1 CAN OUT to slave2 CAN IN...



Then plug the Bat-CCGX comms cable Battery side into the master CAN IN.

This BAT-CCGX comm cable is a special one supplied by Dyness, And has label on, make sure the "inverter Victron" side to the CCGX VE.CAN port, "Battery"side to the master CAN IN port.

1294518	BATTERY-D	Dyness					INVERTER-	
BATTERY-Dy	ness						INVERT	ER-Victron
	Battery ((RJ45 IN)		Inverter				12345678
12345678	PIN	Color	Definition	PIN	Color	Definition		
	1	Orange/white	485_A	1	Orange/white	485_A		
	2	Orange	XGND	2	Green/white	485_B		
H S S H	3	Green/white	485_B	3	Orange	GND		
	4	Blue	CANH	4	Green	NC		
	5	Blue/white	CANL	5	Brown/white	NC		
	6	Green	X+5V	6	Brown	NC		
	7	Brown/white	XIN	7	Blue	CANH		
	0	Desure	NC	8	Blue/white	CANI		

Step 3:Connect the power cable to battery system

Generally we use 1 pair of power cable, and connect them diagonally ,one is on the top and another one is on the bottom. But when the inverter power more than 5KW, we recommend customer to connect 2 pairs of power cables, as the below shows



Because 1 pair of power cable Max. continuous current is 120A, if the current is too high on one cable, it will cause the socket and plug temperature become too high, affect the battery performance.

Step 4 : The cable connection on the CCGX

Connect the Inverter-CCGX comm cable to VE.BUS port, the Bat-CCGX comm cable to VE.CAN port, the MPPT comm cable to VE direct port.



Step 5 : Dial DIP switch on master

Make sure master battery is dialed as below method. $\underbrace{0010}$



All the slaves DIP mode keep 0000 Must set DIP mode before starting the battery. If the battery is POWERBOX,you need confirm the master module inside the box is 0010 or not.



Step 6 : Breaker between inverter and battery Connect DC breaker between inverter and battery to protect both products.

Step 7 : Breaker between MPPT solar charger and Inverter

Connect DC breaker between MPPT solar charger and Inverter to protect both products.

Step 8 : Power on the AC/Grid



Step 9: Power on PV(MPPT)

Turn on the DC breaker between MPPT and inverter, to Power on PV

Step 10: Power on the battery system

Switch on all the modules rocker switch firstly.

Secondly long press the master SW button to wake up the master battery, then slaves battery will be woken up automatically one by one.



Step 11: Switch on DC breaker between the MPPT and inverter

Step 12:Switch on DC breaker between the battery system and inverter



Step 13: Switch on the inverter rocker switch to ON to start the inverter.

e-s-ormi Fe-ormi Fa-ormi Tari	Charger mains on bulk absorption float • battery charger • sinewave inverter	inverter inverter on overload invertery temperature • transfer switch	O AC est 1	charger mains on bulk absorption float	on O off C charger only	inverter inverter on overload low battery temperature
	• battery charger • sinewave inverter • powerassist • parallel connectable AC transfer capacity: 100 A Inverter 1	transfer switch three phase connectable		 battery charger powerassist 	 sinewave inverter parallel connectable 	• transfer switch • three phase connectable
	in a manufacture separation of a movement	30		AC transfer capa	city: 100 A Inverter 2	30 V

Step 14: Battery and inverter are connected!

Now inverter is started, we can do some setup on the CCGX to make the communication success.

Step 15: Inverter setup

1. Ensure the CCGX firmware is newer than V2.42. Setting---firmware



2. Setting---Services---CAN bus---CAN bus profile---choose "CAN-bus BMS (500 kbit/s)"



3. Setting---System setup---Battery monitor---choose "DYNESS-L Battery on CAN-bus"



4. Setting---DVCC---Turn on DVCC

In DVCC,

turn on the "Limit charge current",set the Max.charge current 25A/module.

Turn on STS&SCS,leave SVS off.



5. Get into "MultiPlus 48/5000/70-100",

you can set "input current limit" to control the input power,however,if the Dyness communicate with Victron successfully,inverter will follow the request value sent by battery BMS,such as the Max.charge current,bulk voltage etc.

<	MultiPlus 48/5000/70-1	.00 05:42
Switch		On
State		Bulk
Input curre	ent limit	50.0
DC Voltage	e	51.23V
DC Curren	t	41.2A
State of ch	harge	
<u>ad</u> F	Pages V	≡ Menu
<u>.iii</u> F	Pages	(Ingliter Parts

6. Get into "DYNESS-L Battery",

Choose Parameter---to see the value sent by battery BMS.



Through the CCL&DCL,you can judge if the communication between all the modules is OK or not.For example,on the picture,the average SOC battery send to inverter is 100%,it means each module has got fully charged 100% SOC,at this time,the battery BMS send a DCL 120A,CCL 0A,it means the communication between modules is success,because at 100%SOC,BMS send 30A Max.discharge current/unit,these two value change follow the different SOC% range.

SOC	Discharging Current / A	Charging Current / A	Temperature / °C	Discharging Current / A	Charging Current / A
SOC=0	0	25	<-5	15	0
0 <soc<15< td=""><td>0</td><td>25</td><td>-5~5</td><td>20</td><td>5</td></soc<15<>	0	25	-5~5	20	5
15<=SOC<20	20	25	5~10	30	25
20<=SOC<30	25	25	10~50	30	25
30<=SOC<70	25	25	50~55	20	25
70<=SOC<80	30	25	55~65	10	10
80<=SOC<90	30	20	>65	0	0
90<=SOC<100	30	10			
SOC=100	30	0			

The total current according to the lowest SOC one in parallel system to calculate, not the average SOC.

Note:this off-grid Victron inverter doesn't follow the Max.discharge current value sent by battery, it will supply the load firstly, so when you use the battery system, please note the load power on the battery. But when one battery SOC get to 15%, the BMS will sent Max. discharge current 0A to CCGX, inverter will follow this 0A request and stop discharging.

Step 16: Some parameters setup on the Victron monitor Bulk voltage:53.5V Float voltage:51V Sustain voltage:49V Absorption voltage:52V Cut off voltage:46V

Step 17: You are ready to go

Step 18: Shut Down POWEBOX

1 Remove all the load

- 2 Turn off DC breaker of Powerbox.
- 3 Long press 3s Reset button of the Powerbox to power off battery
- 4 Disconnect PV/Grid
- 5 Turn off the inverter power switch, shut down the inverter

B4850/B3 Parallel

- 1 Remove all the load
- **2** Turn off DC breaker between the battery and inverter.
- 3 Disconnect PV/Grid
- **4** Turn off the inverter power switch, shut down the inverter

5 Long press SW button to power off the battery, from the master to the slaves one by one. Then switch off all the batteries' Power switch