Panda 32Kwh/48Kwh

Energy storage battery pack user operating instructions

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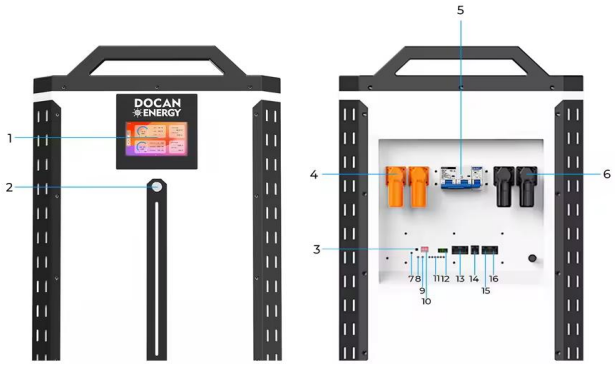
1. Product Description

The lithium iron phosphate battery is one of the independently designed and developed home energy storage product series. It features a long cycle life, BMS software protection with high safety standards, a sturdy casing, exquisite appearance, and easy installation. It is widely used in energy storage systems for off-grid inverters, grid-tied inverters, and hybrid inverters.



1. Touch screen	5. AIR breaker	9. ALM	13. RS485A/CAN
2. Power Swith	6. Negative terminal(-)	10. ADD	14. RS232
3. RST	7. ON/OFF	11. SOC	15. RS485B
4. Positive terminal(+)	8. RUN	12. DRY	16. RS485C

NO.	Name	Funtion
1	Display screen	Display battery capacity, voltage, current, status, alarm and other information.
2	Power switch	To power the battery pack on and off.
3	Reset button	Restore the BMS to its initial state.
4	Positive terminal	Positive terminal.
5	Circuit breaker	Short circuit and overload protection.
6	Negative terminal	Negative terminal
7	Activation light	Displays the activation status of the BMS.
8	Run light	Displays the operating status of the battery pack.
9	Alarm light	Displays the BMS alarm status.
10	DIP	Assign a unique address to the battery pack.
11	Capacity indicator light	Displays the current capacity of the battery pack.
12	DRY	dry contact

13	RS485/CAN	RS485-B communication port.
14	RS232	RS232 communication port, reserved interface.
15	RS485-B	RS485-B communication port.
16	RS485-C	RS485-C communication port.

2. Product Function Description

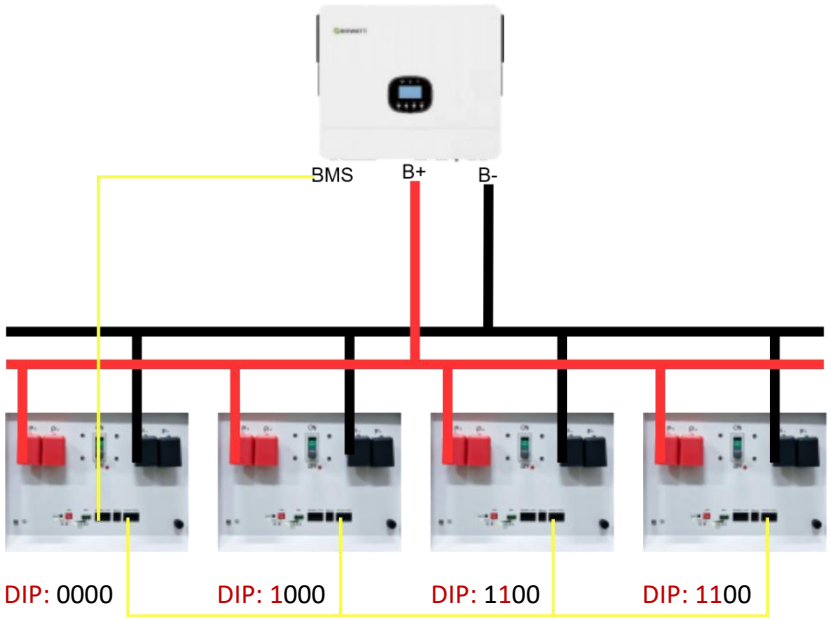
2.1. Product Specifications

Item	32Kwh	48Kwh
Nominal Capacity	628Ah	942Ah
Nominal Voltage	51.2V	51.2
Charging Voltage	58.4V	58.4
Max Charging Current	200A	300A
Mini Discharging Voltage	40V	40V
Max Continuous Discharging Current	200A	300A
Charging Temperature	0℃~45℃	0℃~45℃
Discharging Temperature	-20℃~60℃	-20℃~60℃
Nominal Power	32153Wh	48230Wh

2.2. Parallel connection

Note when connecting batteries in parallel: Do not directly connect the busbar to the battery's positive and negative terminals. When connecting two or more batteries in parallel, do not directly connect the busbar to the terminals; instead, use a busbar or main line for the parallel connection. Try to keep the length of each power cable to the busbar consistent so that the

current for each battery is balanced. The maximum number of batteries supported in parallel is 16, as shown in the diagram below:



2.3. DIP switch demonstration

Address	IP switch				Unit number
	1	2	3	4	
0	OFF	OFF	OFF	OFF	(PACK 1) Master
1	ON	OFF	OFF	OFF	(PACK 2) Slave 1
2	OFF	ON	OFF	OFF	(PACK 3) Slave 2
3	ON	ON	OFF	OFF	(PACK 4) Slave 3
4	OFF	OFF	ON	OFF	(PACK 5) Slave 4
5	ON	OFF	ON	OFF	(PACK 6) Slave 5
6	OFF	ON	ON	OFF	(PACK 7) Slave 6
7	ON	ON	ON	OFF	(PACK 8) Slave 7
8	OFF	OFF	OFF	ON	(PACK 9) Slave 8
9	ON	OFF	OFF	ON	(PACK 10) Slave 9
10	OFF	ON	OFF	ON	(PACK 11) Slave 10
11	ON	ON	OFF	ON	(PACK 12) Slave 11
12	OFF	OFF	ON	ON	(PACK 13) Slave 12
13	ON	OFF	ON	ON	(PACK 14) Slave 13
14	OFF	ON	ON	ON	(PACK 15) Slave 14
15	ON	ON	ON	ON	(PACK 16) Slave 15

2.4. Communication interface definition

2.4.1. RS485 communication

The BMS can communicate with the host computer through the RS485 communication interface. It has an RS485 parallel interface, which can support up to 16 battery packs in parallel, with a default baud rate of 9600bps.
The RS485 interface for inverter communication has a default baud rate of 9600bps.

2.4.2. communication

The BMS can communicate with the inverter through the CAN interface and upload various battery information such as voltage, current, temperature, SOC, SOH, working status, etc. The default baud rate is 500Kbps.

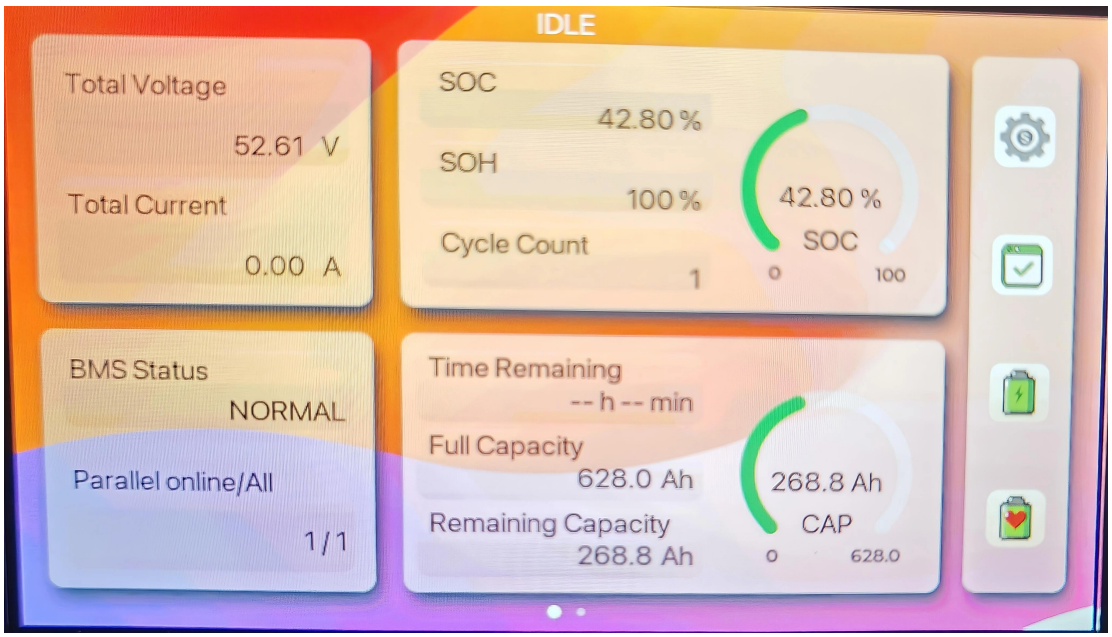
RS485-1 interface (communication with host computer or inverter) Supports Suori, Riyueyuan, and Pylon protocols - switch protocols through the host computer.		CAN-1 communication interface (for communication with the inverter) Supports Victron, Pylon, Growatt protocols - switch protocols via the host computer.	
RS485 — using an 8P8C vertical RJ45 socket.		CAN — using an 8P8C vertical RJ45 socket.	
RJ45 pinout definition.	Definition	RJ45 pinout definition.	Definition
1	RS485-B	4	CAN-H
2	RS485-A	5	CAN-L
6	GND	6	GND

EMS communication port (no function).	
using a vertical RJ11 socket.	
RJ45 pinout definition.	Definition
3	RS485-C
4	RS485-C
5	GND

Parallel communication port (for parallel connection only).			
R485-2 — Using vertical RS485 socket		RS485-2— Using 8 P8C vertical R J45 socket	
RJ45 pinout definition.	Definition	RJ45 pinout definition.	Definition
1	RS485-B	1	RS485-B
2	RS485-A	2	RS485-A
6	GND	6	GND
7	RS485-A(parallel)	7	RS485-A(parallel)
8	RS485-B(parallel)	8	RS485-B(parallel)

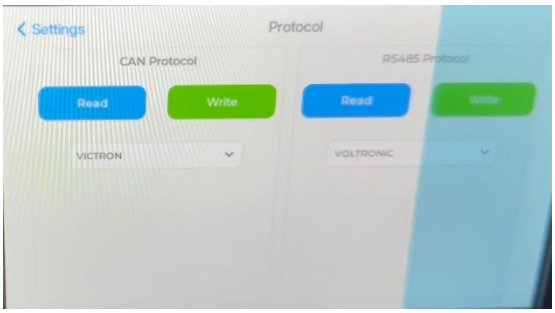
2.5. Touchscreen introduction.

2.5.1. Product image.



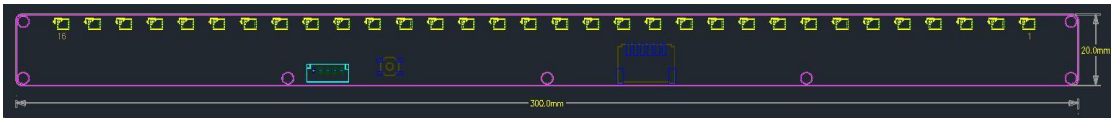
2.5.2. Function introduction.

Displays battery capacity, voltage, current, status, alarms, protocol settings, and other information.



2.6. Indicator light definition description.

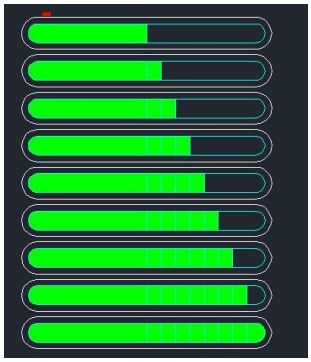
RGB light: 1 6-channel tri-color light, red, green, and yellow.



2.6.1. Definition of marquee and signal lights reminder function**.**

- Power-on self-test: The green light runs from low to high, from light 1 to light 16, at a frequency of 300 milliseconds. After the self-test is completed, it enters the normal display state.
- If communication between the BMS and the light board is interrupted for 30 seconds or Battery SOC blow 20%, the yellow light flashes for reminder, on for 1 second and off for 1 second.
- When a fault or protection is triggered, the red light stays on constantly; when an alarm is triggered, the red light flashes (0.5-second flash). (The red light is off during undervoltage protection, and it should not flash or stay on constantly during an overvoltage alarm or overvoltage protection.)

●When charging, the green light flashes in a cycle (for example, when the SOC is 50%, the highest SOC light flashes).



●When discharging, the SOC (State of Charge) decreases.

●Over-discharge protection activated, the system enters sleep mode, and all power is turned off.

- The corresponding length is displayed according to the actual SOC (for example, when the SOC is 50%, as shown in the figure below).

2.7. Working mode.

2.7.1. Basic mode.

2.7.1.1. Charging mode.

When the BMS detects an external charging voltage and the cell voltage and temperature are within the chargeable range, it turns on the charging MOSFET for charging. When the charging current reaches the effective charging current, the system enters charging mode. In charging mode, both the charging and discharging MOSFETs are turned on.

2.7.1.2. Discharge mode.

When the BMS detects that a load is connected, the cell voltage and temperature are within the dischargeable range, and the discharge current reaches the effective discharge current, the BMS enters discharge mode. In discharge mode, both the charge and discharge MOSFETs are turned on.

2.7.1.3. Sleep and wake-up modes.

The system enters sleep mode when the following conditions are met：

① The single cell undervoltage protection or total pack undervoltage protection is not released within 30 minutes;

② Press the button for 3 seconds and then release it;

③ The lowest cell voltage is lower than the sleep setting voltage (default value is 3350mV) and the duration reaches the delay time (when there is no communication and no charge or discharge current, the default value is 1440 minutes);

④ Force shutdown through the host computer software.

Before entering sleep mode, ensure that the P- terminal is not connected to an external voltage, otherwise the system will not be able to enter low power mode.

If the lowest cell voltage is lower than the undervoltage protection value by 500 millivolts, the device will be forced into deep sleep after a delay of 10 minutes.

- Wake-up conditions from sleep mode：

1) Connect to a charger with an input voltage greater than 48V;
2) Press and hold the button for 1 second and then release it to wake up the device.

2.8. Shutdown mode.

When the weak current switch is disconnected, the BMS enters shutdown mode and can only be turned on by closing the weak current switch.

2.9. Button description (optional).

When the BMS is in sleep mode, press the button for 1 second and then release it. The BMS is activated, and the LED indicator lights up sequentially for 0.5 seconds starting from the "RUN" light.

When the BMS is in working state, press the button for 3-6 seconds and then release it. The BMS will enter sleep mode, and the LED indicator lights up sequentially for 0.5 seconds starting from the light indicating the lowest power level.

When the BMS is in working state, press the button for ≥ 10 seconds and then release it. The BMS will perform a hardware reset, and the LED indicator will show the current power level.

3. WiFi settings.

Ask your Docan sales rep to make an wifi account for you first, Enter the WiFi setting interface, where you can set the module to connect to an accessible WiFi hotspot and connect to the network via WiFi, thereby reporting BMS data to the server platform. This enables remote viewing and control of the BMS through the platform. Entering the WiFi setting interface requires the password: 888888 (The process is the same as entering the parameter setting interface; you can refer to the previously described process for entering the parameter setting interface).

In the WiFi name field and WiFi password field of the WiFi setting interface, the WiFi hotspot name and WiFi password saved by the module can be displayed (when the corresponding field is empty , it means the module has not saved the relevant information). The module networking status field below can display the current networking status of the module.

In the WiFi name setting field and WiFi password setting field, respectively fill in the name and password of an accessible WiFi hotspot near the module. After filling them in click the set button, and the module will save the information of this WiFi hotspot and connect to it. The WiFi hotspot name does not need to be entered manually. After clicking the WiFi name field, a list of available WiFi networks near the phone will appear below the APP. You can select the WiFi to connect to from the list, and the APP will automatically fill in the WiFi hotspot name in the WiFi name field. Then manually enter the password for that WiFi hotspot and click set.

Note that the WiFi frequency band of the module is 2.4GHz. Do not connect it to a 5GHz frequency band WiFi hotspot to avoid being unable to use it after connecting to WiFi! ! !

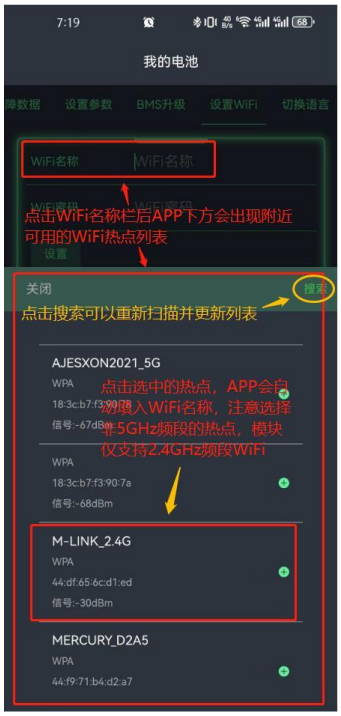
- App download

Docan Amy Zheng Google Drive link for the BMS Software :
https://drive.google.com/drive/folders/1eXNm91sYQYGuM5Bx8cK715_UqUzWMXqe?usp=sharing

- WiFi Configure WiFi

In the WiFi name setting field and WiFi password setting field, respectively fill in the name and password of an accessible WiFi hotspot near the module. After filling them in, click the set button, and the module will save the information of this WiFi hotspot and connect to it.

Here you can view the current networking status of the module.



After clicking the WiFi name field, a list of available WiFi hotspots nearby will appear below the App.

Click "Search" to rescan and update the list.

Click on the selected hotspot, and the App will automatically fill in the WiFi name. Be careful to select a WiFi hotspot that is not on the 5GHz band, as the module only supports 2.4GHz band WiFi.

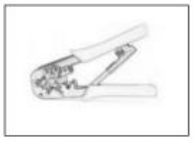
After filling in the WiFi hotspot password, click "Set", and the module will save and connect to that WiFi hotspot.

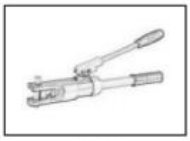
4. Tools

To install the battery pack, the following tools may be needed:


十字螺丝刀
Phillips screwdriver


扳手
Wrench


电缆压接钳
Cable crimping pliers


夹钳
Clamp


万用表
Multimeter


电批
Electric screwdriver


一字螺丝刀
Flat-head screwdriver

To ensure the safety of operators and installers, please select and use appropriate tools and measuring instruments certified for precision and accuracy.

4.8. Safety protection.

When handling batteries, the following safety devices should be equipped. Installers must comply with the relevant requirements of IEC 60364 or national legislation and other related international standards.


绝缘隔热手套
Insulated heat-resistant gloves


护目镜
Safety goggles


安全鞋
Safety shoes

5. Secure connection.

将电缆与逆变器端标有B- 的一端连接
Connect the cable to the end labeled B- on the inverter side.

将电缆与电池组端标有P- 的一端连接
Connect the cable to the end labeled P- on the battery pack side.

将电缆与电池组端标有B+ 的一端连接
Connect the cable to the end labeled B+ on the inverter side.

将电缆与电池组端标有P+ 的一端连接
Connect the cable to the end labeled P+ on the battery pack side.

将空开合到ON的位置
Turn the circuit breaker to the ON position.

按下电池组电源按钮
Press the power button on the battery pack.

打开电逆变器电源按钮
Press the power button on the inverter.

将确认无误的通信线一端插入到BMS的CAN/RS485端口
Insert one end of the confirmed correct communication cable into the CAN/RS485 port of the BMS.

将通信线的另一端插入到逆变器的BMS端口
Insert the other end of the communication cable into the BMS port of the inverter.

6. Product lifespan.

The product has a cycle life of 8000 cycles.

7. Transportation.

●During transportation, please avoid violent vibration, impact, excessive sun exposure, and getting the battery wet.

●Customized wooden box packaging and delivery. During loading, unloading and transportation, violent vibrations and large external force impacts must be avoided. Rolling, inverting, crushing, and stacking too high are prohibited.

●Protection from rain during transportation is necessary.

●Before transportation, ensure the battery or battery pack is disconnected from any load on the charging equipment and that there is no charging or discharging activity of any kind.

●Before transportation, the high-voltage and low voltage wiring harnesses should be secured and protected to avoid damage or even short circuits caused by the harnesses being pulled during transit.

●If damage such as dropping or water ingress occurs during transportation, the item should be set aside and inspected by professionals separately.

8. Storage.

The temperature is 25+3°C, and the relative humidity is 45~85%.
Lithium batteries must be charged every three months and require a complete charge and discharge cycle every six months.

9. Precautions.

Installation and debugging should be carried out by professional electrical personnel.

Do not put your hands or other objects deep inside the product.

Please do not open the product without professional personnel.

Please do not mechanically damage the battery module cabinet of the energy storage device (perforation, deformation, peeling, etc.).

Please use a dry powder fire extinguisher as the extinguishing agent.
Please do not allow the battery module to come into contact with abnormal metals or conductors.

If the battery has a short circuitplease contact professional electrical personnel or th e batterymanufacturer to test and remove the short circuit protection before use.
Please do not expose the energy storage cabinet to flammable or hazardous chemicals ovapors.

10. Warranty and Replacement.

Your battery is warranted against defective materials or workmanship from the date of retail purchase.
EXCEPT FOR THIS LIMITED WARRANTY, WE MAKE NO OTHER WARRANTIES AND EXPRESSLY EXCLUDE ANY IMPLIED WARRANTIES, INCLUDING ANY WARRANTY FOR CONSEQUENTIAL DAMAGES. THIS LIMITED WARRANTY IS NOT TRANSFERABLE.
The seller warrants that, if used according to all applicable instructions, this product will be free from original defects in materials and workmanship during the warranty period. If any failure problem occurs with the product during the warranty period, the seller will, at its discretion, repair or replace the product based on the failure situation.

Keep your proof of purchase, such as a dated receipt. This unit is warranted to the original purchaser or user and may cover defects in materials and workmanship.
For failures due to defects in materials or workmanship occurring within six months from the date of purchase, we will, at our discretion, repair or replace the unit after inspection.

This warranty is void if any of the following occur, including but not limited to:

* Failure to follow the instructions in the user manual.
* Accident or unreasonable use, misuse or mishandling, overcharging or overloading, or normal wear and tear.
* Extended storage without charging, or repair or modification by unauthorized personnel.

THIS WARRANTY IS IN LIEU OF ALL OTHER EXPRESS WARRANTIES. DOCAN INC. SHALL NOT BE LIABLE FOR CONSEQUENTIAL OR INCIDENTAL DAMAGES.

11. Packing List.

Inspect the device before installation. Ensure the packaging is not damaged. The following items should be included in the packaging:

电池组*1
Battery pack *1

正负极电缆*1
Positive and negative cables *1

通信线*2
Communication cable *2

备用螺丝*1
Spare screws *1

说明书*1
Manual *1