LIGHTWAVE

PRODUCT SPECIFICATION SHEET

Model:
LW-LiFe-10KW

catalogue

1. Application scope

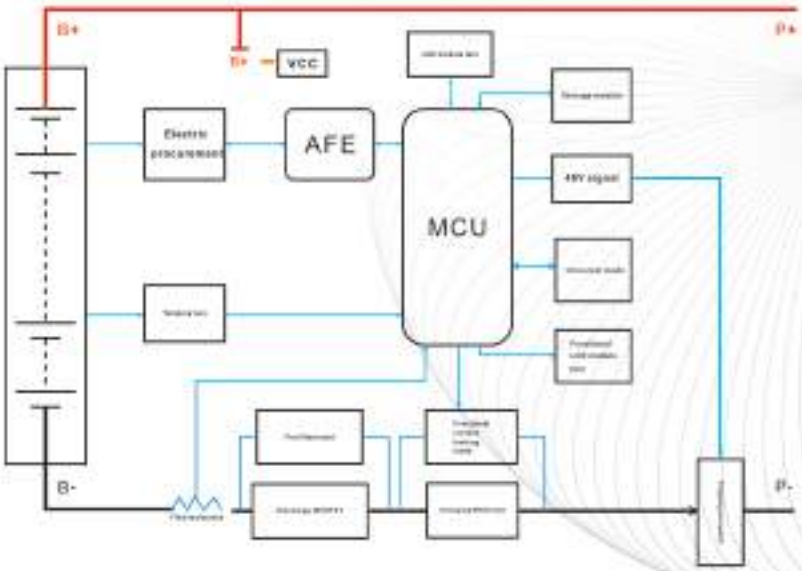
This specification sheet is suitable for the rechargeable batterypack products designed and developed by LIGHTWAVE

2. Basic characteristics

Number	project	Common parameters	Remarks
one	model	10KW	Block cell -200Ah
two	Rated capacity	200Ah	
four	energy	10.24KWh	
five	Rated voltage	51.2V	
six	Maximum charging voltage	58.4V	
seven	Discharge cutoff voltage	40V	
eight	Standard charging and discharging	40A	
	Maximumcharging current	150A	
nine	Maximum continuous discharge current	150A	
ten	Battery weight	≈ 76.4KG	
eleven	Internal resistance	≤ 9 mΩ	Including internal resistance of testing fixtures
twelve	Support inverter interaction protocol — RS485	1. PYLON; 2. GROWATT; 3. [illegible]; 4. SE (Schneider); 5. [illegible]; 6. [illegible] (Pengcheng); 7. SOLAR; 8. LITHIUM; [illegible] 24. [illegible]	
	Support inverter interaction protocol — CAN	1. PYLON; 2. GROWATT; 3. VICTRON; 4. SE (Schneider); 5. [illegible] (Pengcheng); [illegible] 10. SOFAR (First Flight); [illegible]	

			0.YWT (Inflation); 21. FUTL; 22. NOPAR V21003 (First Flight);			
thirteen	cycle life		SOC> 80% initial capacity @ room temperature6000 times 0.5C charging 0.5C discharging DOD 80%			
fourteen	Shipping voltage		> 51. 2V			
fifteen	Charging method (CC/CV)	standard	CC	40A	58.4V cut-off	Charge at a constant current and voltage of 40A to 58.4V, then switch to constant voltage charging at 58.4V until the charging current is less than or switch to constant voltage equal to 0.02C.
			CV	58.4V	4A cutoff	
sixteen	working temperature		charging		0 ℃~65℃	
			discharge		-20 ℃~65℃	
			Storage		-20 ℃~65℃	

3. Product Block Diagram



4. Terminal Definition

41 Terminal functions and definitions

	Wiring Definition	
P+	Battery positive pole	
P-	Battery negative electrode	
RS485I	When using the battery box in parallel, you can also view the PACK information, with a default baud rate of 9600bps	RJ45-8P * 2
RS485Z		
CAN/RS485	Used to connect inverters	RJ45-8P
RS232	It can communicate with the upper computer through the RS232 interface, so that various information of the battery can be monitored through the upper computer, including voltage, battery current, temperature, status, and battery protection information. The default baud rate is 9600bps	RS232-6P6C
SWITCH	Control battery pack output	
REST	Reset switch controls battery on/off and reset	
ADS	DIP switch, set RS485 address and terminal resistance	
CAPACITIY	Power display	
DO	Dry junction	
ALM	Warning indicator light	

4.2 Communication Interface Definition

4.2.1 RS232-6P6C vertical RJ11 pins are defined as follows:

Rs232- Using 6P6C vertical RJ11 socket	
RJ11 pin	Definition Description
tow	NC
three	TX(Single Board)
four	RX(Single Board)
five	GND

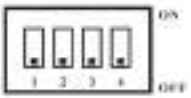
The definition of RJ45 pins is as follows:

RS485.Using 8P8C vertical Rj45 socket		CAN Using 8P8C vertical RJ45 socket	
RJ45 pin	Definition Description	RJ45 pin	Definition Description
1, 8	RS485-B1	9, 10, 11 , 14, 16	NC
2, 7	RS485-A1	twelve	CANL
3, 6	GND	thirteen	CANH
4, 5	NC	fifteen	GND

CAN and Rs485 interfaces

RS485.Using 8P8C vertical Rj45 socket		CAN Using 8P8C vertical RJ45 socket	
RJ45 pin	Definition Description	Rj45 pin	Definition Description
1, 8	RS485-B	9,16	RS485-B
2, 7	RS485-A	10,15	RS485-A
3, 6	GND	11,14	GND
4, 5	NC	12,13	NC

4.3.DIP switch address setting:



address	DIP switch position			
	#1	#2	#3	#4
0	OFF	OFF	OFF	OFF
one	ON	OFF	OFF	OFF
two	OFF	ON	OFF	OFF
three	ON	ON	OFF	OFF
four	OFF	OFF	ON	OFF
five	ON	OFF	ON	OFF
six	OFF	ON	ON	OFF
seven	ON	ON	ON	OFF
eight	OFF	OFF	OFF	ON
nine	ON	OFF	OFF	ON
ten	OFF	ON	OFF	ON
eleven	ON	ON	OFF	ON
twelve	OFF	OFF	ON	ON
thirteen	ON	OFF	ON	ON
fourteen	OFF	ON	ON	ON
fifteen	ON	ON	ON	ON

When PACK is used in parallel, different PACKs can be distinguished by setting the address through the DIP switch on the BMs. To avoid setting the address to be the same, refer to the table below for the definition of BMS DIP switch.

4.4.Explanation ofindicator lights:
4.41 Work status indication:

state	Normal/Alarm /Protection	ON/ OFF	RUN	ALM	Battery indicator LED						explain
		●	●	●	●	●	●	●	●	●	
Shutdown	Normal	Extinction	Extinction	Extinction	Extinction	Extinction	Extinction	Extinction	Extinction	Extinction	Dual protection
Standby	normal	Chang Liang	Flash 1	Extinction	According to the power indicator						position in Antiburn
	Alarm	Chang Liang	Flash 1	Flash 1							Multiple Low Voltage
Charging	normal	Chang Liang	Chang Liang	Extinction	According to the power indicator (The highest battery indicator LED flashes 2)						The highest battery LED flashes alternating 2s, and the ALM does not flash when there is no overvoltage alarm

	[illegible]	Chang Liang	Chang Liang	Flash 1							
	[illegible]	Chang Liang	Chang Liang	Extinction	Chang Liang	Chang Liang	Chang Liang	Chang Liang	Chang Liang	Chang Liang	If there is no mains power, the indicator light will remain to modify it[illegible]
	[illegible]	Chang Liang	Extinction	Chang Liang	Extinction	Extinction	Extinction	Extinction	Extinction	Extinction	Stop charging
discharge	[illegible]	Chang Liang	Flash 1	Extinction	According to the power indicator						
	[illegible]	Chang Liang	Flash 1	Flash 1							
	[illegible]	Chang Liang	Extinction	Extinction	Extinction	Extinction	Extinction	Extinction	Extinction	Extinction	Stop discharging
	Temperature, over current, short circuit, reverse connection, failure protection	Chang Liang	Extinction	Chang Liang	Extinction	Extinction	Extinction	Extinction	Extinction	Extinction	Stop discharging
Invalid		Extinction	Extinction	Chang Liang	Extinction	Extinction	Extinction	Extinction	Extinction	Extinction	Stop charging and discharging

4.4.2 Work status indication:

state		charging						discharge					
Capacity indicator light	L6	L5	L4	L3	L2	L1		L6	L5	L4	L3	L2	L1
	●	●	●	●	●	●		●	●	●	●	●	●

4.4.3Workstatusindication:

4.5 Switchbutton instructions:

When the BMS is in sleep mode, press the button (3-6 seconds) and release it to activate the protection board. The LEDindicator lights will light up for 0.5 seconds starting from "RUN".

When the BMS is in an active state, press the button (3-6 seconds) and release it. The protection board will be put into sleep, and the LEDindicator lights will light up for 0.5 seconds starting from the lowest battery level.

When the BMS is in an active state, press the button (6-10 seconds) and release it, the protection board is reset, and all LEDlights light up simultaneously for 1.5 seconds.

4.6 Sleep and wake-up:

4.6.1 Sleep

When any of the following conditions are met, the system enters low-power mode:

1) Individual or overall over discharge protection has not been released for 30 seconds.
2) Press the button (3-6S) and release it.
3) The minimum individual voltage is lower than the sleep voltage and the duration reaches the sleep delay time (while meeting the requirements of no communication, no protection, no balance, and no current).
4) The standby time exceeds 24 hours (no communication, no charging or discharging, no mains power).
5) Force shutdown through upper computer software.

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

4.6.2 Wakeup

When the system is in low-power mode and meets any of the following conditions, the system will exit low-power mode and enter normal operating mode:

1) Connect the charger, and the output voltage of the charger should be greater than 48V.
2) Press the button (3-6S) and release it.
3) Activate RS232.

Note: After individual or overall over discharge protection, enter low-power mode, wake up regularly every 4 hours, and turn on the charging and discharging MOS. If charging is possible, it will exit sleep mode and enter normal charging mode. If automatic wake-up fails to charge for 10 consecutive times, it will no longer automatically wake up.

When the system is defined as after the end of charging, if the recovery voltage is not reached after 2 days of standby (set value of standby time), the charging will be forcibly restored until the end of recharging.

5. Protective board

5.1 Electrical parameters

Number	Indicator items		Factory default parameters	Is it possible to set	Remarks
one	Individual overcharge protection	Individual overcharge alarm voltage	3600mV	Can be set	
		Individual overcharge protection voltage	3700mV	Can be set	
		Single body overcharge protection delay	1.0S	Can be set	
	Individual overvoltage protection released	Individual overcharge protection release voltage	3300mV	Can be set	
		Capacity release	SOC < 96%	Can be set	
		Discharge release	Discharge current>1A		
two	Individual over discharge protection	Individual over discharge alarm voltage	2800mV	Can be set	After 30 seconds of over discharge protection, if it still cannot be restored, it will enter low-power mode
		Individual over discharge protection voltage	2500mV	Can be set	
		Single unit over discharge protection delay	1.0S	Can be set	
	Individual over discharge protection released	Individual over discharge protection release voltage	2950mV	Can be set	
		Release when charging	Connected to charger to activate		
three	Overall overcharge protection	Overall overcharge alarm voltage	57.6V	Can be set	
		Overall overcharge protection voltage	58.4V	Can be set	
		Overall overcharge protection delay	1.0S	Can be set	
	Overall overvoltage protection released	Overall overcharge protection release voltage	52.8V	Can be set	
		Capacity release	SOC < 96%	Can be set	
		Discharge release	Discharge current>1A		
four	Overall over discharge protection	Overall overvoltage alarm voltage	44V	Can be set	After 30 seconds of overdischarge protection, if it still cannot be restored, it will enter low-power mode
		Overall overvoltage protection voltage	40V	Can be set	
		Overall over discharge protection delay	1.0S	Can be set	

	Overall over discharge protection lifted	Overall overvoltage protection release voltage	46.4V	Can be set	
		Release when charging	Connected to charger to activate		
five	Charging current limiting function	Charging current limiting current	20A		Current limit opening can be set, maximum opening Starting current value 100A
six	Charging overcurrent protection	Charging overcurrent alarm current	155A	Can be set	10 consecutive occurrences will lock the state and no longer automatically release it
		Charging overcurrent protection current	160A	Can be set	
		Charging overcurrent protection delay	1.0S	Can be set	
	Release of charging overcurrent protection	Automatic release	Automatically released after 1 minute		
		Discharge release	Discharge current>1A		
seven	Discharge overcurrent1 protection	Discharge overcurrent 1 alarm current	155A	Can be set	10 consecutive occurrences will lock the state and no longer automatically release it
		Discharge overcurrent 1 protection current	160A	Can be set	
		Discharge overcurrent 1 protection current delay	1.0S	Can be set	
	Discharge overcurrent protection released	Automatic release	Automatically released after 1 minute		
		Charging release	Charging current>1A		
eight	Discharge overcurrent 2	Discharge overcurrent 2 protection current	≥ 200A	Can be set	10 consecutive occurrences will lock the state and no longer automatically release it
		Discharge overcurrent 2 protection delay	100ms5	Can be set	
	Discharge overcurrent 2 protection released	Automatic release	Automatically released after 1 minute		
		Charging release	Charging current>1A		
nine	Short circuit protection	Short circuit protection function	have		
		Short circuit protection released	When charging, short circuit protection is released		
			After the load is removed, it will		

			automatically be released		
ten	MOS high-temperature protection	MOS over temperature alarm temperature	90℃	Can be set	
		MOS over temperature protection temperature	115 ℃	Can be set	
		MOS protection release temperature	85℃	Can be set	
eleven	Cell temperature protection	Charging low temperature alarm temperature	0℃	Can be set	
		Low temperature protection temperature for charging	-5℃	Can be set	
		Charging low temperature protection release temperature	0℃	Can be set	
		Charging high temperature alarm temperature	60℃	Can be set	
		High temperature protection temperature for charging	65℃	Can be set	
		Charging high temperature protection release temperature	55℃	Can be set	
		Discharge low temperature alarm temperature	-15℃	Can be set	
		Discharge low-temperature protection temperature	-20℃	Can be set	
		Discharge low-temperature protection release temperature	-15℃	Can be set	
		Discharge high temperature alarm temperature	65℃	Can be set	
		High temperature protection temperature for discharge	70℃	Can be set	
		Discharge high temperature protection release temperature	60℃	Can be set	
twelve	Environmental temperature alarm	Environmental low temperature alarm temperature	-15℃	Can be set	
		Environmental low-temperature protection temperature	-20℃	Can be set	
		Environmental low-temperature protection release temperature	-15℃	Can be set	

		Environmental high temperature alarm temperature	65 ℃	Can be set	
		Environmental high temperature protection temperature	75 ℃	Can be set	
		Environmental high temperature protection release temperature	65 ℃	Can be set	
thirteen	Consumption current	Self consumption current during operation	≤ 55mA (with display screen)		
			≤ 40mA (without display screen)		
		Low power mode current	≤ 200 μ A		
fourteen	Balance function	Balanced opening voltage	3500mV	Can be set	
		Open differential pressure	30mV	Can be set	
fifteen	Low battery alarm	Low battery warning threshold	SOC < 5%	Can be set	No alarm during charging
sixteen	Sleep function	Sleep voltage	2850mV	Can be set	
		delay time	5 minutes	Can be set	
seventeen	Cell failure protection	Individual pressure difference	Pressure difference> 1V	Can be set	Do not allow charging and discharging
eighteen	Full charge judgment	Full charge voltage	> 56V	Can be set	Stop charging when both conditions are met and update SOC to 100%
		Cutoff current	< 2A	Can be set	

6. BMS maximum applicable range

project	Parameter values	unit
Working temperature range	-20-75	℃
Working humidity range	10-85%	%RH
Storage temperature range	-20-75	℃
Storage humidity range	10-85%	%RH

7. Outline drawing

Unit mm tolerance ± 2mm

8. Physical image

9.Trademarks and sticker

Product name: LiFePO4 Energy Bank
Product model: LW-LiFe-10KW
Rated voltage : 51.2V
Rated capacity : 200AH
Watt hour : 10240WH

10.Packaging diagram

11. Instructions for use

11.1. Before using the battery, please carefully read the user manual and the surface markings on the battery.

11.2. During use, keep away from heat sources and high voltage, avoid children playing with the battery, and do not fall on the battery.

11.3. Do not short circuit the positive and negative terminals of the battery, do not disassemble the battery yourself, and do not place the battery in a damp place to avoid danger.

11.4. Please dispose of discarded batteries safely and properly, and do not throw them into fire or water.

11.5. The battery pack should be stored at room temperature and charged to 40% -60% of its capacity. To prevent over discharge of the battery, it is recommended to charge it every 3 months.

11.6. The battery pack should be used under specified conditions, and performance is not guaranteed for batteries stored for more than one year.

11.7. Batteries must meet corresponding regulations during transportation, such as packaging, documentation, labeling, etc.

12. Installation and debugging

12.1 List of Goods

Number	name	quantity	picture
one	Battery pack	1 PCS	
two	Wall mounted socket	1 PCS	
three	Wall hanging hooks	2 PCS	
four	Expansion screw	6 PCS	

12.2 Choose a suitable installation location

- Do not place the battery on flammable building materials
- Recommend hanging the battery on a vertical wall
- The temperature should be between 10 ℃ and 30 ℃ to maintain optimal operating conditions.
- There should be some free space around the battery for heat dissipation,

  suitable for installation on concrete surfaces or other non flammable surfaces.

13.Disclaimer

Before using the product, please read the product specifications, user manual, and usage precautions carefully to understand the usage method and application scope of the product .If there are errors in the use of the product, incorrect circuit connections, or discrepancies between the input power supply , load functional parameters, and performance parameters marked in the product specifications , it is considered improper use . Our company does not assume any responsibility fordamage to the product , load , and surrounding connectors caused by improper use.

Any matters not mentioned in this specification shall be determined through consultation between both partiesThe final interpretation right of this specification belongs to LIGHTWAVE