Smart Li-LFP 48100 SPEC

RD department

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Introduction:

The SW- Li LFP48100 A0 is standard energy storage battery pack based on n w technology; It is designed to overcome the difficult issue when the old telecom   te expand to meet new communication technology introduce. It have very good fea   e As bellow :

(1) Very longer cycle lifespan ,more than 3900times cycle life(80%DOD

(2) Wide range of charging Voltage :   40V-54.6V;

(3)   Can endurance the fast charge by : 0.5C or 1.0C;

(4)   Smart control daily running by BMS communication with host syst

(5)   Anti-theft from software control by Audible alarm and lock discharg   ort.

Smart-Li LFP 48100 Battery Pack

Specification:

| Item		Description	Remark
Basic information	Product model	SW-Smart Li LFP 48100	
	Cathode material	LFP	
	Nominal voltage	48Vdc	
	Nominal charging voltage	54V	
	Max.charging/Discharging current limited	50A/50A@35°C	
	Cycle life	3500cycles @100%DOD;3900cycles 0.5C 80%DOD @35°C	
	Weight (Kg)	Approx.45kg	
	Nominal capacity	100Ah @0.2C 35°C（4800wh@0.2C 35°C）	
	Dimension (W×D×H)	483×396×132	
	Self discharge @25°C	Less then 5% after 90days storage	
	Communication interface	RS485A/RS485B（Support parallel connection）	
	Max.Quantity of paralleled connection	RS485 :8	
	Max. Load power supported in parallel	24kw	
	Terminal	M6.Torque 4N.m	
	Installation Type	Standard 19″Rack	
	Protection & Alarm	Over current, over temperature, over charge, over discharge , short circuit ect.	
	Certification	CE UN38.3	
	Calendar life	15years	
	Security feature	BMS lock, Gyro sensor with audible alarm, operation	
	Indicator	With LED Screen	

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Smart-Li LFP 48100 Battery Pack

Environment	Storage Temperature	Storage:0°C to 40°C
	Transportation Temperature	−30°C to 60°C
	Operating Temperature	Charging:0°C to 45°C;Discharging:-20°C to 45°C
	Relative Humidity	5% to 95%
	Max Operating Altitude	4000m(Each 200m increases in altitude will decrease the working temperature by 1°C from 2000 m to 4000 m)

Pack drawing

※133.00±3mm

※483±3mm

※440±3mm

※420±3mm

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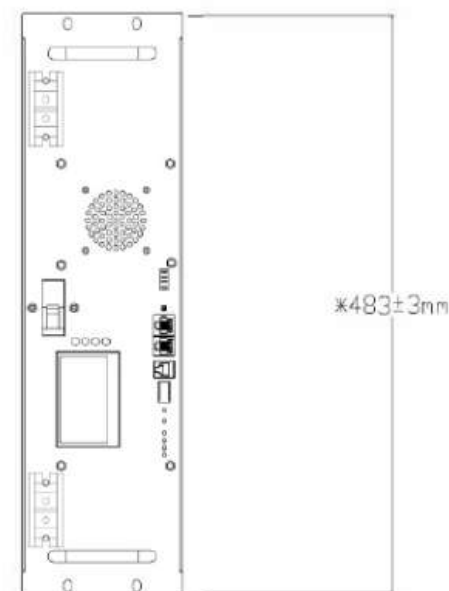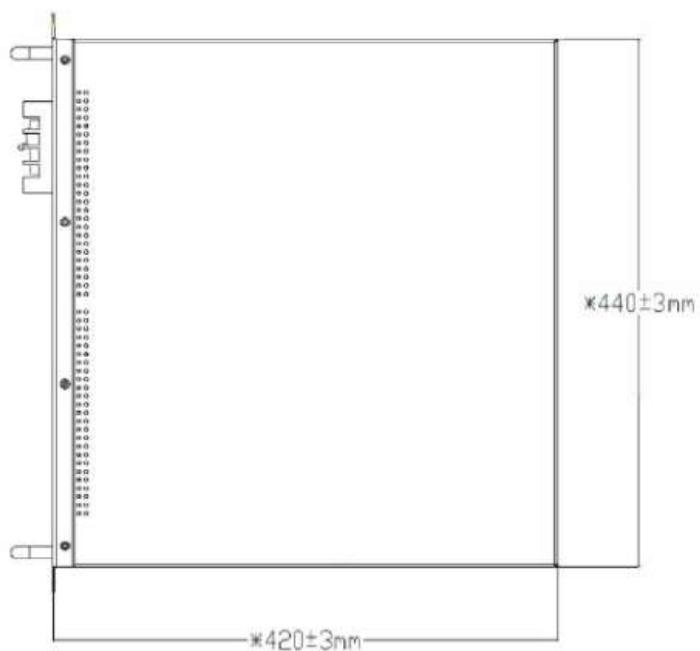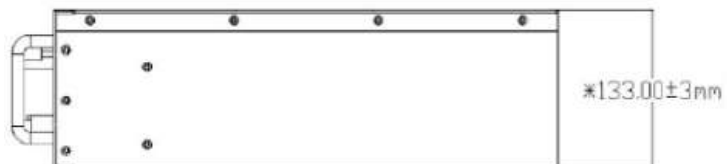
Different current discharge curves （5A、10A、20A、30A、40A、50A、80A、100A）
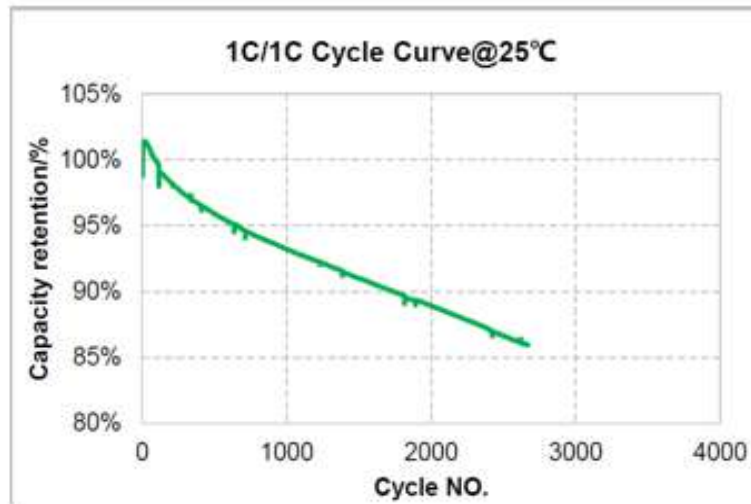

Different current discharge curves
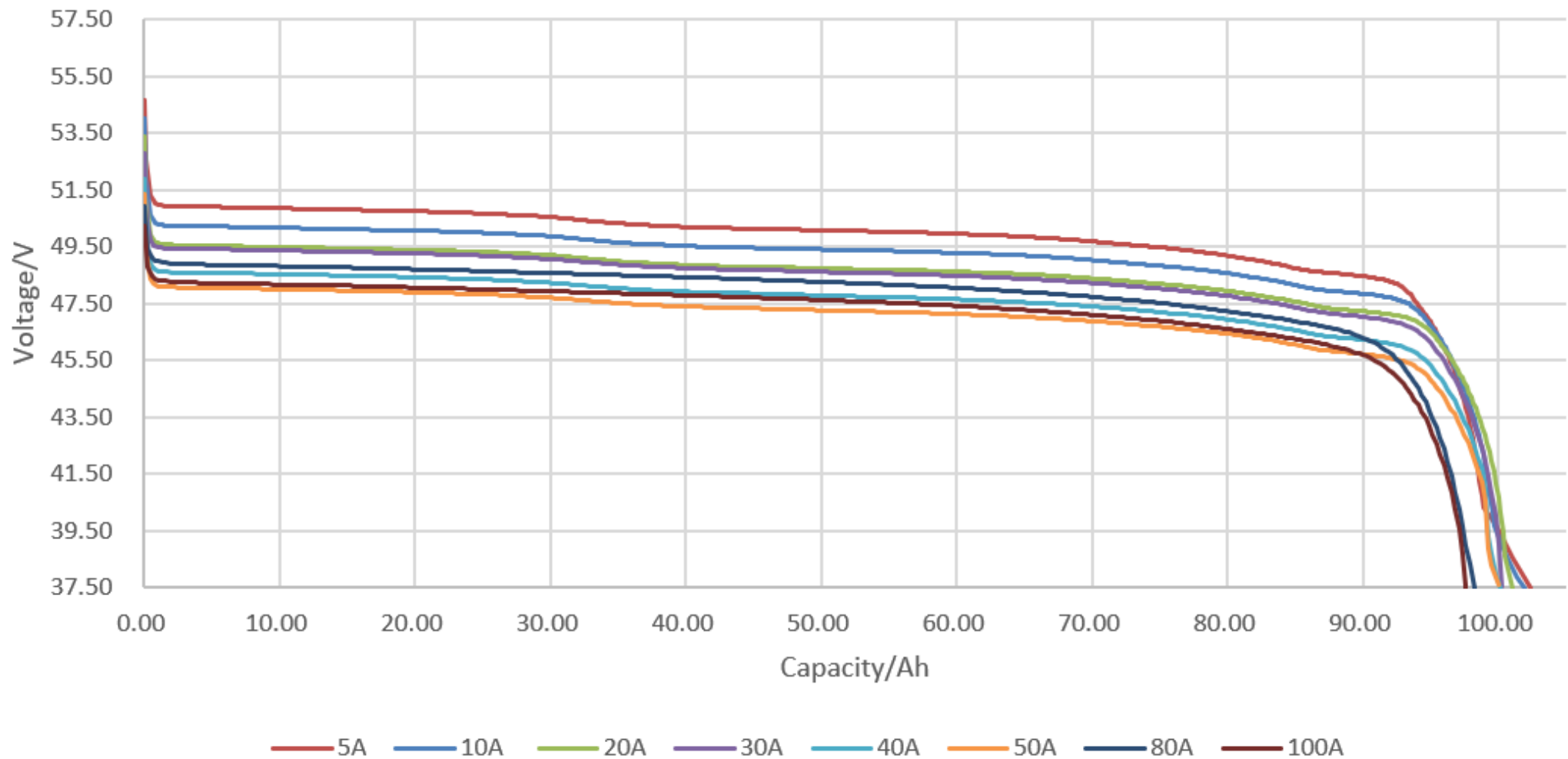
Cell deterioration to EoL

Test Condition：25℃ & 45℃，2.5V~3.65V(100%DOD)，1C/1C Cycle

25℃ Cycle Life

Prediction of cycle life @25℃ is 3800cycle，100%DOD.

45℃ Cycle Life

Prediction of cycle life @45℃ is 2000cycle

1C/1C Cycle Curve@25℃
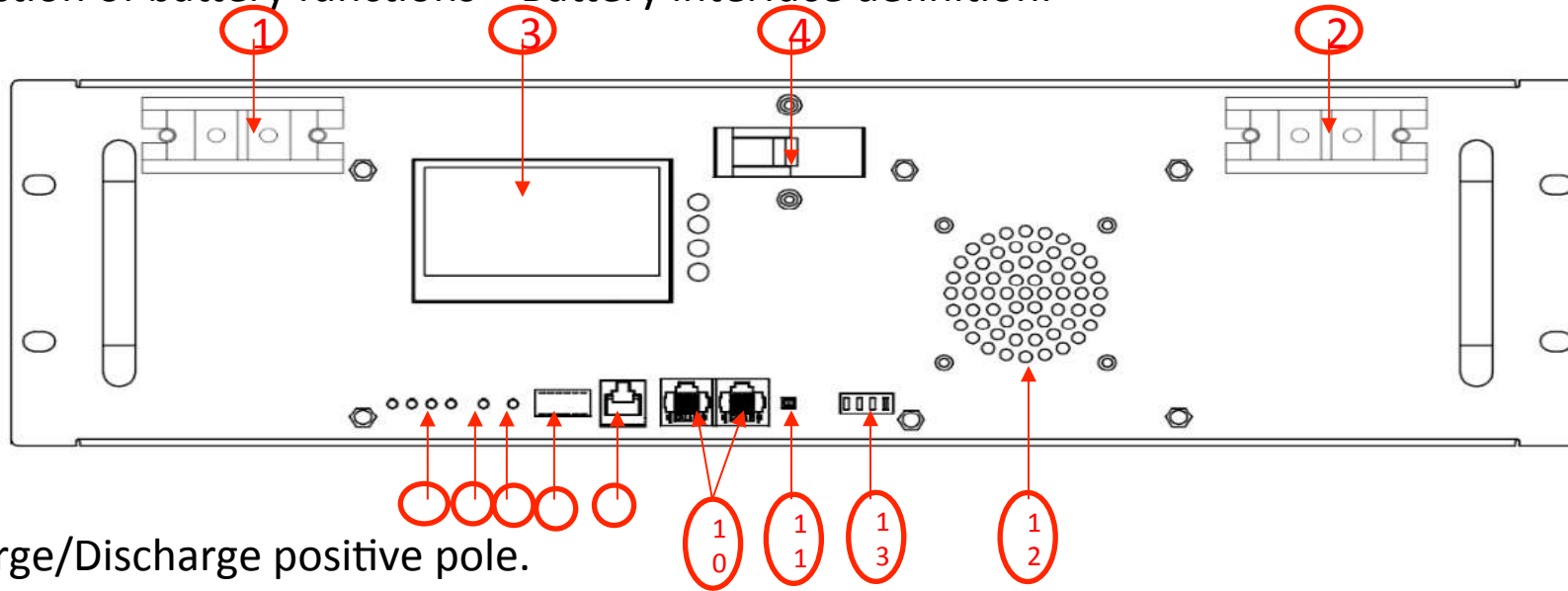

1C/1C Cycle Curve@45℃
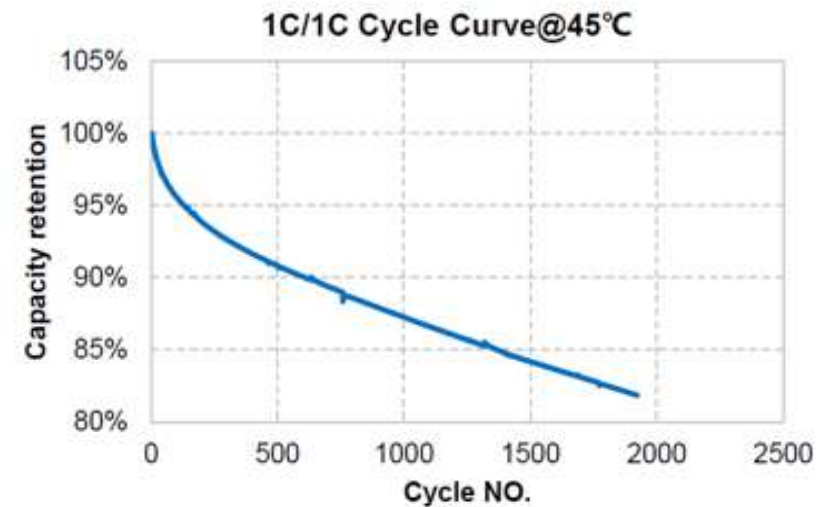
So we can evolute the cell cycle life test by 35℃(100%DOD) will be got to 3500cycles

Also we can evolute the cell cycles life test by 35 ℃ (80%) will be got to 3900cycles

Cycle curve (cycles vs DoD) at 35degC----0.5C 80% DOD

Cycle Performance@35℃ 0.5C/0.5C

Cycle curve (cycles vs DoD) at 35degC
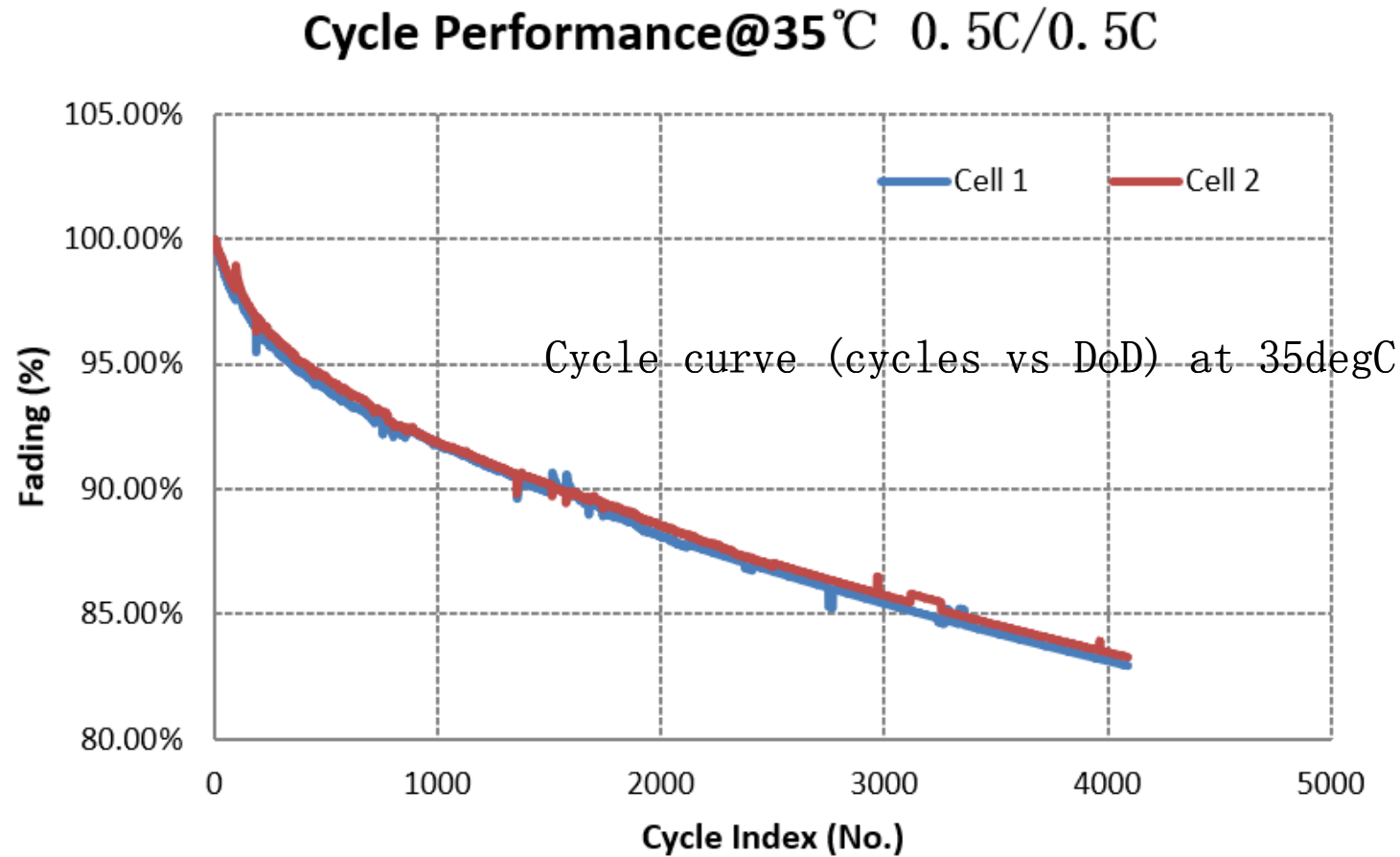
Introduction of battery functions---Battery interface definition.

1 . Charge/Discharge positive pole.

2 . Charge/Discharge negative pole.

3 . LCD screen & Control buttons（Functions of Button from top to bottom: MENU、ENTER、DOWN、ESC）

4. Circuit breaker （Set off when leaving factory.）

5. Display LED of capacity （0~25% Light up a LED; 25%~50% Light up two LED ; 50%~75% Light up three LED; 75%~100% All LED is lights. ）

6. ALM LED.

7. RUN LED.

8. DIP switch （Set the address for each parallel battery pack. ）

9. RS232 （Connect the battery to the upper computer.）

10.RS485A/B interface.

11.Reset button.

12.Fan

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12. Dry contact

Dray connect

1   2   3   4

	Dray connect 1	(Pin1 to Pin2) :	SOC < 20%
Dray connect	Dray connect 2	(Pin3 to Pin4) :	Battery alarm
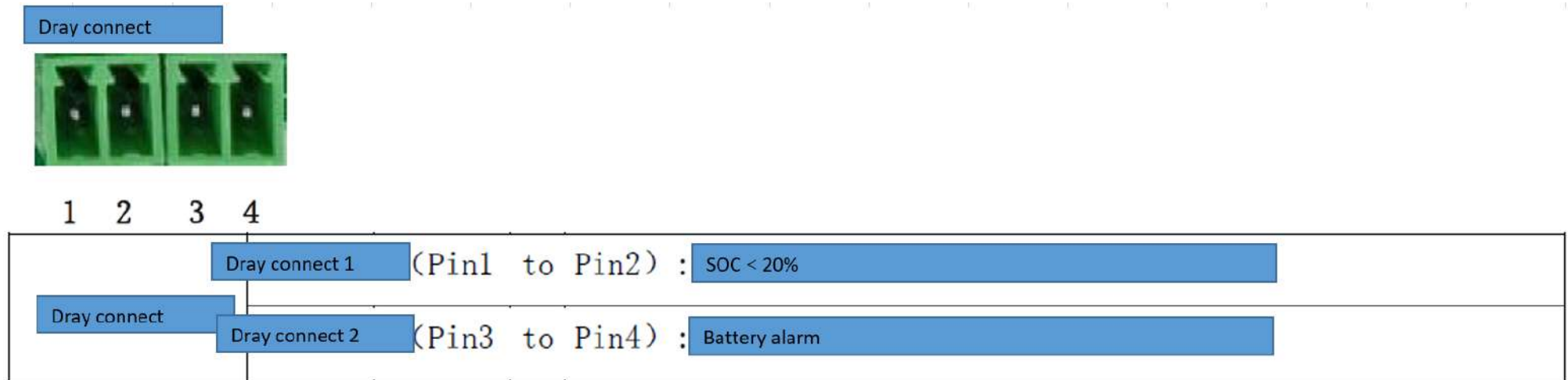
the dry contacts

1-2 for the state of charge, which in this case we series up and connect it

to the rectifier. Which tell the rectifier to drop non essentials when the

battery is low.

3-4 on the dry contact is for the alarm which we also connect to the

rectifier

Introduction of battery functions- Gyro operation instructions

Gyro operation
The gyros can be turned on all the time, activated by charging and discharging, and connected to the upper computer to program and close.
Use the signal converter to connect the battery RS232 interface to the computer USB interface.
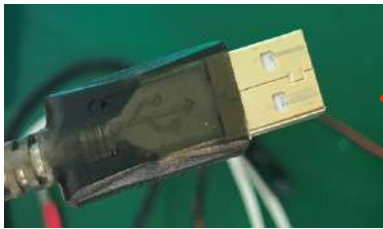
Connect the computer USB

Signal converter

Connect the Battery RS232

BMS parameter setting

Function	Status	Project		parameter
Cell Voltage alarm	OPEN	over-voltage alarm		3.6
	OPEN	Undervoltage alarm		2.9
Cell over-voltage protection	OPEN	the voltage of the overvolatge protection		3.75
		the delay time of the overvolatge proteciton		30S
		the recovery voltage of the overvolatge proteciton		3.34
		the recovery condition of the overvolatge proteciton	must auto recover after 1 minute	
			must auto recover after 1 minute	
Cell Undervoltage protection	OPEN	the voltage of the undervoltage proteciton		2.5
		the delay time of the undervoltage proteciton		30S
		the recovery voltage of the undervoltage proteciton		3
		the recovery condition of the undervoltage proteciton	must auto recover after 1 minute	
			must auto recover after 1 minute	
Battery pack voltage alarm	OPEN	over-voltage alarm		54.5
	OPEN	Undervoltage alarm		47
Battery pack over-voltage protection	OPEN	the voltage of the overvolatge proteciton		55
		the delay time of the overvolatge proteciton		15S
		the recovery voltage of the overvolatge proteciton		53.5
		the recovery condition of the overvolatge proteciton	1、Battery pack voltage ≤ overvoltage voltage	
			2、diacharge current≥2A	
Battery pack Undervoltage protection	OPEN	the voltage of the undervoltage proteciton		43.5
		the delay time of the undervoltage proteciton		15S
		the recovery voltage of the undervoltage proteciton		45
		the recovery condition of the undervoltage proteciton	1、Battery pack voltage ≥ undervoltage voltage	
			2.charge voltage ≥2A	

BMS parameter setting

Cell temp alarm	OPEN	high temp alarm of charge		50℃
		low temp alarm of charge		0℃
		high temp alarm of discharging		60℃
		low temp alarm of discharging		0℃
the temp protection of charge	OPEN	high temp peotection of charge		65℃
		the recovery temp		55℃
		low temp peotection of charge		-5℃
		the recovery temp		-1℃
the temp protection of discharging	OPEN	high temp protection of discharging		75℃
		the recovery temp		65℃
		low temp protection of discharging		-20℃
		the recovery temp		-15℃
Ambient temp alarm	OPEN	High ambient temp alarm		55℃
		low ambient temp alarm		-20℃
Over charge current alarm	OPEN	Current		25A
Over charge current peotection	open	Protection current		25A
		Delay time		10S
The charge current limiting	Open	CURRENT	Opening condition: over charge current protection or parallel connection of battery.	20A
Over discharging current alarm	open	Alarm current		80A
Over discharging current peotection	open	Portection current		95A
		Delay time		10S
			charge current≥2A	

BMS parameter setting

Over discharging current protection(level 2)	open	Protection current(level 2)	Automatically remove protection after 1 minute	150A
		Delay time(level 2)		300mS
		Discharge overcurrent protection release.(level 2)	Auto Recovery after 30 Seconds	
short circuit protection	open	Protection current		150A
		delay time		60S
		short circuit protection release	1.charge current≥2A	
			2.Disconnect the load	
Cell charge balance	open	Opening condition	The state of effective charge current	
		Opening voltage	3450mV	3.45
		open differential pressure	40mV	40mV
Battery capacity	nominal capacity			100A
	open	low capacity alarm	20%	

Home screen display

◆ Serial number of the battery

◆ State of charge Battery

◆ temperature Status of the battery

◆ locked or unlocked (this is for the gyro sensor)

Safety----IEC62619

The IEC62619 safety certificate of the battery pack shall be completed and obtained

four weeks， after the customer confirms that the battery pack meets the requirements.

Warranty

usually ,we can give our customer 5 years warranty promise for standby using scene.

But if hybird using field, we just can give customer 3 years warranty .

Disposal strategy

we would like to bear responsibility to Disposal as the local government regulation.

This specification would be update when the new

samples finished ,because we will revise the BMS

function by ther new version .