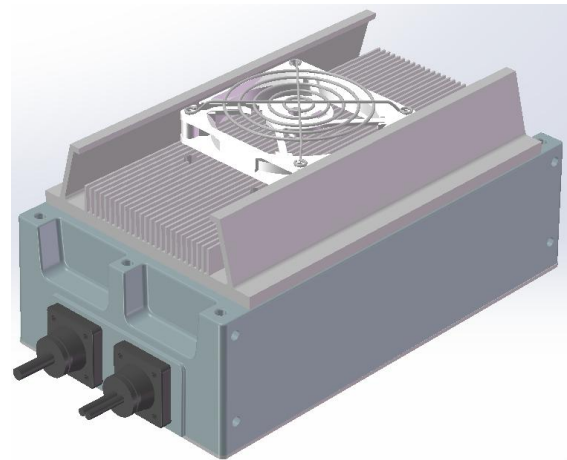
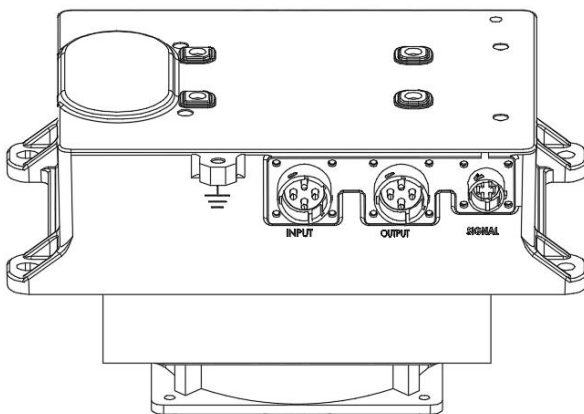


GL23 Series 3.3KW Lithium Battery Charger Specification

I. Introduction

GL23 series 3.3KW charger is specially designed for power battery according to the national standard of charger. The use of PFC+LLC topology, featuring high efficiency, small size, stable work, long design life, high reliability, complete protection functions, IPX6 class waterproof, vehicle-mounted, portable, and it is an ideal power source for charging lithium batteries such as electric vehicles and tools.



II. Revision

No.	Version	Date	Event
1	VER1.0	20220411	Establish documentation
2	VER1.1	20220818	Improve the specification of the connector
3	VER1.1	20220923	Add rectangular shape
4	VER1.1	20221008	Revise the output voltage range of 96V and 320V
5	VER1.1	20221017	Revise the output voltage range of 48V
6			
7			

III. Model Definition

①Series		②Output Voltage	③Output Current	④ Heat Dissipation Form		⑤Configuration No.
GL23	-	72	40	A	/	C1000

①Series: GL23 Fixed Word

②Output Voltage: 72 refers to hardware rated output voltage 72V

③Output Current: 40 refers to hardware rated output current 40A

④Heat Dissipation Methods: “/”refers to forced cooling of fan, A refers to Liquid Cooling

⑤Configuration Number:

C1000-C1999 is CAN controlled, lithium battery, with basic charge and heating function

C2000-C2999 is CAN controlled, lithium battery, with CC/CP function

C3000-C3999 is CAN controlled, lithium battery, with DC charging function

C4000-C4999 is CAN controlled, lithium battery, special for all-in-one machine

E5000-E6999 is enable wire controlled, lithium battery

P7000-P8999 is program controlled, Lead-Acid battery/ Nickel-Cadmium battery,etc.

Examples of Product Model:

SN.	Model	Rated Voltage	Rated Current	Battery Type	Configuration No.	Heat Dissipation Form	Remarks
1	GL23-4840A/C1000	48V	40A	lithium battery	C1000	Liquid Cooling	suitable for CAN controlled charging Lithium Battery Pack
2	GL23-4840/C1000	48V	40A	lithium battery	C1000	Forced Air Cooling	suitable for CAN controlled charging Lithium Battery Pack
3	GL23-7240A/E5000	72V	40A	lithium battery	E5000	Liquid Cooling	suitable for Enable controlled charging Lithium Battery Pack
4	GL23-7240/P7000	72V	40A	lead-acid battery	P7000	Forced Air Cooling	suitable for program controlled charging lead-acid battery Pack

5	GL23-32010/C1000	320V	10A	lithium battery	C1000	Forced Air Cooling	suitable for CAN controlled charging Lithium Battery Pack
---	------------------	------	-----	-----------------	-------	--------------------	---

Examples of Configuration Number:

Configuration No.	Rate	Frame Type	Receive ID	Send ID	Remarks
CAN1000	250K	Extended Frame	0x1806E5F4	0x18FF50E5	
CAN1001	500K	Extended Frame	0x1806E5F4	0x18FF50E5	
CAN1010	250K	Standard Frame	0x320	0x325	
CAN1011	500K	Standard Frame	0x320	0x325	

The combination of product model + configuration number can meet the needs of different customers The product model + configuration number shall be specified as the complete order number.

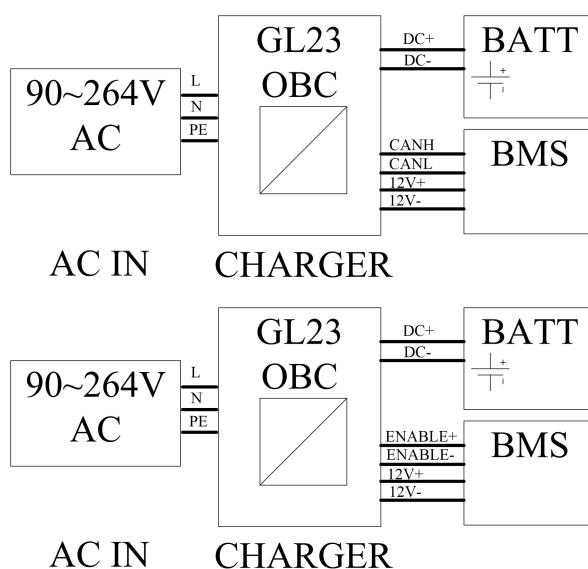
IV. Reference Standards

- QC/T 895-2011 《Conductive on-board charger for electric vehicles》
- GB/T 18487.1 《Electric vehicle conductive charging system -Part 1: General requirements》
- GB/T 17626.3 《Electromagnetic compatibility—Testing and measurement techniques—Radiated ,radio-frequency ,electromagnetic field immunity test》
- GB/T 17626.4 《Electromagnetic compatibility Testing and measurement techniques Electrical fast transient/burst immunity test》
- GB/T 17626.5 《Electromagnetic compatibility-Testing and measurement techniques-Surge immunity test》
- GB/T 17626.11 《Electromagnetic compatibility-Testing and measurement techniques-Voltage dips , short interruptions and voltage variations immunity tests》
- GB/T 2423.8 《Environmental testing for electric and electronic products Part2:Test methods Test Ed:Free fall》
- GB/T 2423.1 《Environmental testing for electric and electronic products—Part 2 : Test methods—Tests A :Cold》
- GB/T 2423.2 《Environmental testing for electric and electronic products—Part 2 : Test methods—Tests B :Dry heat》

GB/T 2423.4 《Environmental testing for electric and electronic products—Part 2 : Test methods—Tests Db:Damp heat,cyclic》

QCT 413 《Basic Technical Conditions for Electric Equipment of Vehicle》

V. Block Diagram of System Application Principle



Schematic Diagram of Application Principle of the Charger

The "GL23 OBC" in the block diagram is a charging product of GL23 series. After AC90-264V power is connected to the charger, the charger starts to output 12V signal or 12V3A power, wakes up BMS or supplies power to BMS, and begins to send CAN messages. After the BMS wakes up, the 12V charging signal or CAN signal is detected, the charging requirement is determined, and a charging control message is sent to the charger (or turn on the hard-wire charging enable). The charger begins to output voltage and current to charge the battery.

When it is necessary to stop charging, BMS sends a shutdown instruction to the charger, or disconnects the enable line, and the charger stops charging and maintains a 12V signal output.

VI. Technical Specifications

Type		GL23-4840	GL23-6040	GL23-7240	GL23-9632	GL23-12028
Input	Input voltage Range	AC 90~264V OR 130 – 400V DC				
	Frequency	47-63Hz OR DC				
	Input Current	16A MAX@100V AC , 16A MAX@220V AC , Full Load				
	Power Factor	≥0.98 @110VAC , ≥0.97 @220VAC , Full Load				
	Efficiency	≥92%@110VAC , ≥93%@220VAC , Full Load				

	Standby Power Consumption	≤6W				
Main Output	Control Method	Trickle / C.V. / C.C / CAN Control / Enable Control				
	Output Voltage Range	32-66V	40-80V	48-101V	64-132V	80-168V
	Output Current	40A	40A	40A	32A	28A
	Output Power	3300W @220VAC 1600W @ 110VAC				
	Output Leakage Current	2ma MAX @ Rated Voltage				
	Constant Voltage Accuracy	±1%				
	Constant Current Accuracy	±5%				
	Ripple Voltage Coefficient	≤3% RMS Resistive Load at Constant Voltage				
	Ripple Current Coefficient	≤5% RMS Resistive Load				

Type		GL23-14423	GL23-21615	GL23-32010	GL23-36010	GL23-54006
Input	Input voltage Range	AC 90~264V OR 130 – 400V DC				
	Frequency	47-63Hz OR DC				
	Input Current	16A MAX@100V AC , 16A MAX@220V AC , Full Load				
	Power Factor	≥0.98 @110VAC , ≥0.97 @220VAC , Full Load				
	Efficiency	≥92%@110VAC , ≥93%@220VAC , Full Load				
	Standby Power Consumption	≤10W				
Main Output	Control Method	Trickle / C.V. / C.C / CAN Control / Enable Control				
	Output Voltage Range	96-192V	144-288V	210-430V	240-450V	300-650V
	Output Current	23A	15A	10A	10A	6A
	Output Power	3300W @220VAC 1600W @ 110VAC				
	Output Leakage Current	2ma MAX @ Rated Voltage				
	Constant Voltage Accuracy	±1%				
	Constant Current Accuracy	±5%				
	Ripple Voltage Coefficient	≤3% RMS Resistive Load at Constant Voltage				
	Ripple Current Coefficient	≤5% RMS Resistive Load				

Auxiliary Output A	Rated Output Voltage	13V±2V
	Max Output Current	0.2A
	Max Output Power	2.4W
	Remark	With short circuit protection
	Explanation	Used to wake up BMS, standard configuration
Auxiliary Output B	Rated Output Voltage	13V±2V
	Max Output Current	3A
	Max Output Power	40W
	Remark	With short circuit protection, battery reverse protection, charge management function, can connect 12V lead-acid battery
	Explanation	Wake up BMS/ to provide power to BMS. The actual current should be less than 2A.

Protection Function	Type	GL23-4840	GL23-6040	GL23-7240	GL23-9632	GL23-12024
	Output Low Voltage Protection	≤32V	≤40V	≤48V	≤64V	≤80V
	Output Over Voltage Protection	≥70V	≥87V	≥102V	≥138V	≥180V

Protection Function	Type	GL23-14423	GL23-21613	GL23-32010	GL23-36010	GL23-54006
	Output Low Voltage Protection	≤96V	≤144V	≤210V	≤240V	≤290V
	Output Over Voltage Protection	≥205V	≥310V	≥440V	≥460V	≥680V

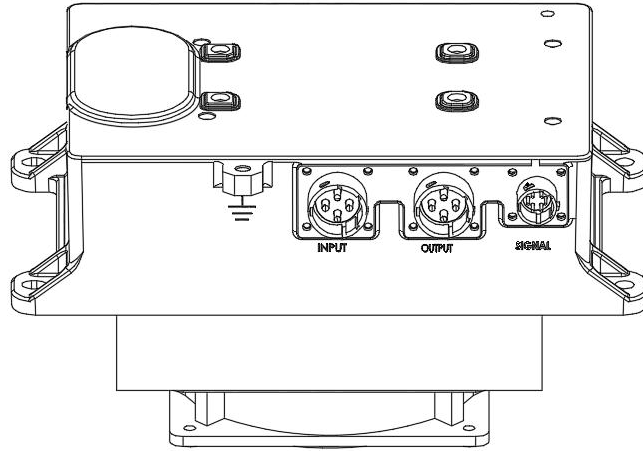
Protection Function	Input Over Voltage Protection	≥270V AC OR ≥400V DC
	Input Under Voltage Protection	≤90V AC
	Short Circuit Protection	Stop Output

Battery Reverse Protection	No output / No damage
Over Temperature protection	90 degrees, start to reduce power at 85 degrees.
Communication Failure Protection	CAN communication is interrupted for 5 seconds for protection

Safety and Environment	Withstand Voltage	Input to Output : 2000VAC \leq 10mA ,Input to ground : 2000VAC \leq 10mA Output to ground : 48-72V 1500VAC \leq 10 mA 96-540V 2000VAC \leq 10mA Average 60S
	Insulation Resistance	Input end, Output end Shell \geq 10M Ω , Test Voltage 500VDC
	Ground Protection	Input PE Line to Shell \leq 100m Ω
	Leakage Current	when 220AC is input, Input leakage current to the housing \leq 0.5mA
	Lightning Surge	\pm 1KV to L and N lines, using a pulse with a period of 50uS and a rise time of 1.2nS
	ESD	Air discharge \pm 8KV, contact discharge \pm 15KV, can continue to work normally
	Electromagnetic disturbance	Meet the Requirement of GB/T 18487.3-2001 item 11.3.2
	Harmonic Current	Meet the Requirement of GB 17625.1-2003 item 6.7.1.1
	Starting impulse current	\leq 16A @ 264VAC
	Current Rise Time	\leq 5S, Overshoot \leq 5%
	Turn Off Response Time	100% to 10% \leq 50mS, 100% to 0% \leq 100mS
	Protection Levels	IP66
	Vibration Resistance	10 – 25Hz (A) 1.2mm, 25 – 500Hz 30m/s ² , 1 hour in each direction
	Noise	\leq 60dB(Grade A)
	MTBF	15000H
	Altitude	\leq 2000m
	Operating Environment	Relative Humidity 10%-90% No Condensation
	Operating Temperature	-40 $^{\circ}$ C ~ + 85 $^{\circ}$ C
	Storage Environment	Relative Humidity 5%-95% No Condensation
Storage Temperature	-40 $^{\circ}$ C ~ +105 $^{\circ}$ C	

VII. Interface Definition

- Schematic Diagram of Standard Interface



Definition of AC input Interface:

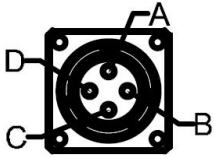
AC Input Plug-in Unit Model : XXC103-EV-P4ZA		Plug Model: XXC103-EV-P4TA		
Brand	PIN foot	Definition	Remark	
鑫喜	A	Input N	-	
	B	Input L	-	
	C	NC Null	-	
	D	PE	-	

- Definition of Signal Interface:

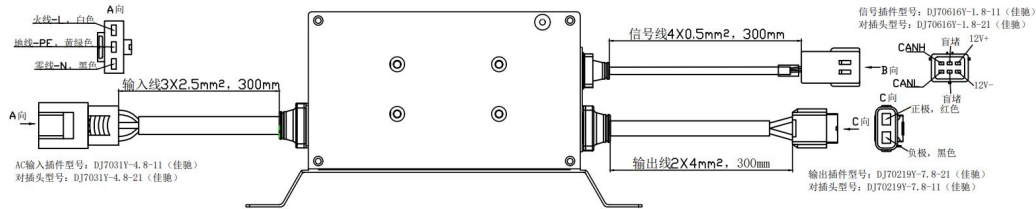
Signal Interface Plug in Unit Mode: XXC103-EV-P6ZC		Plug Model: XXC103-EV-P6TC		
Brand	PIN	Definition	Remark	
鑫喜	A	CANL	-	
	B	CANH	-	
	C	ENABLE+(High Enable)	CAN_GND	
	D	12V3A+	-	
	E	12V_GND	two ways 12V output sharing the ground	
	F	12V0.2A+	-	

- Definition of DC output Interface:

Current 6—40A:


DC Output Plug-in Unit Model: XXC103-EV-P4ZB			Plug Model: XXC103-EV-P4TB	
Brand	PIN foot	Definition	Remark	
鑫喜	A、D	Output Positive Pole	When it is greater than 30A, two PIN feet are required to be used in parallel.	
	B、C	Output Negative Pole		

Schematic Diagram of Line-type Interface Connector




The default length of input beam, output beam and signal beam is 300mm.

● Definition of Ac input Interface :

AC Input Plug-in Unit Model: DJ7031Y-4.8-11			Butt Plugs Model: DJ7031Y-4.8-21	
Brand	PIN foot	Definition	Line Color/Line Diameter mm2	
佳驰	1	Input L	White (Brown) /2.5	
	2	PE	Yellow Green/2.5	
	3	Output N	Black (Blue) /2.5	

● Definition of Signal Interface:

Signal Interface Plug in Unit Mode: DJ70616Y-1.8-11			Butt Plugs Model: DJ70616Y-1.8-21	
Brand	PIN foot	Definition	Line Color/Line Diameter mm2	
	1	CANH	Brown/0.5	

佳驰	2	ENABLE+(High Enable)	Green/0.5	
	3	12V3A+	Red/0.5	
	4	CANL	Blue/0.5	
	5	CAN_GND	Yellow/0.5	
	6	12V3A-	Black/0.5	

Definition of DC Output Interface :

Vehicle-mounted Type, Current 10—25A:

DC Output Plug-in Unit Model: DJ70219Y-7.8-21		Butt Plugs Model: DJ70219Y-7.8-11		
Brand	PIN foot	Definition	Line Color/Line Diameter mm2	
佳驰	1	Output Positive	Red/4	
	2	Output Negative	Black/4	

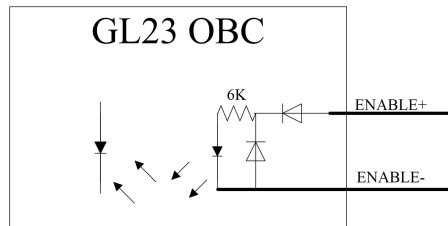
Vehicle-mounted Type, Current 26—35A:

DC Output Plug-in Unit Model: DJ70253A-9.5-21		Butt Plugs Model: DJ70253A-9.5-11		
Brand	PIN foot	Definition	Line Color/Line Diameter mm2	
佳驰	1	Output Positive	Red/6	
	2	Output Negative	Black/6	

Portable, Or Current 36-50A:

DC Output Plug-in Unit Model: Anderson 50A Grey		Butt Plugs Model: Anderson 50AGrey		
Brand	PIN foot	Definition	Line Color/Line Diameter mm2	
HuamiKJ/ 秦米	1	Output Positive	Red/10-12	
	2	Output Negative	Black/10-12	

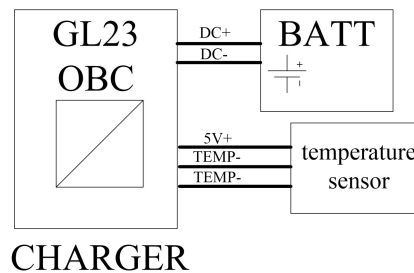
VIII. External Enable Interface



The external enabling interface uses optocoupler isolation with an impedance of 6K, which can accept an input voltage of 5 to 35V and control the charging / stopping of the charger.

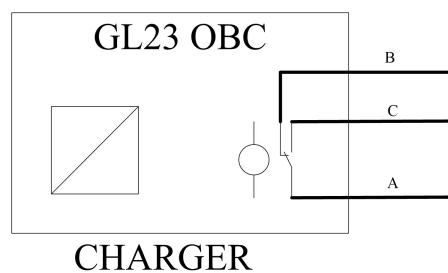
By default, the negative electrode of the 12V enable line (ENABLE-) inside the charger is connected to the negative electrode (AGND) of the 12V signal output interface, as long as the 12V enable line (ENABLE+) is short connected with 12V +, enabling charging can be achieved.

IX. External Temperature Detection Interface



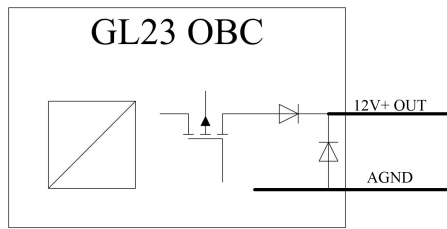
The external temperature sensor is 18B20, which is connected by three wires and clings to the battery pack. Note that the temperature detection line needs to be insulated and shall not be in contact with any line.

X. Relay Signal Output Interface



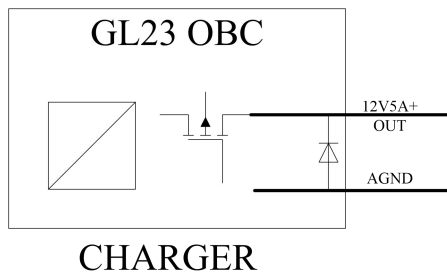
The relay signal provides a set of normally open NO/ normally closed NC outputs (usually using normally closed NC), conversion capability 2A30V DC or 0.5A125V AC. By default, as long as there is an AC or DC power input, it will always be sucked and combined with relay until the power is power-down.

XI. 12V Signal Output Interface



The 12V output provides a controlled 12V level signal with a current capacity of 0.2A, isolated from the main output (DC-). By default, as long as there is AC power input, it will output a 12V level signal.

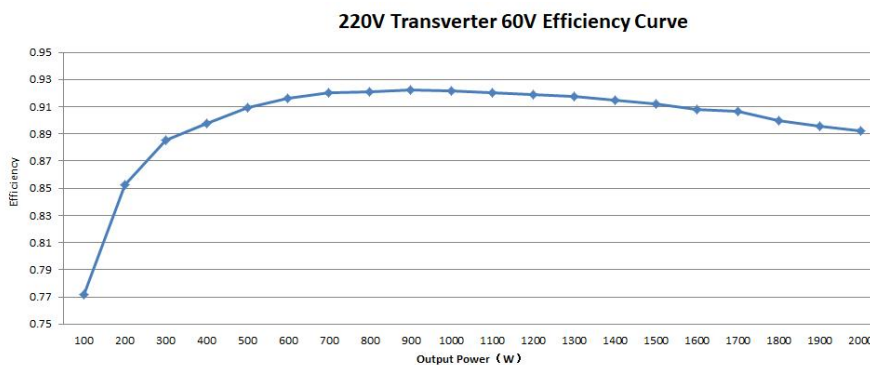
XII. 12V Power Output Interface



The 12V power output provides a controlled 12V power signal with a current capacity of 5A, isolated from the main output (DC-) and shared with 12V 0.2A.

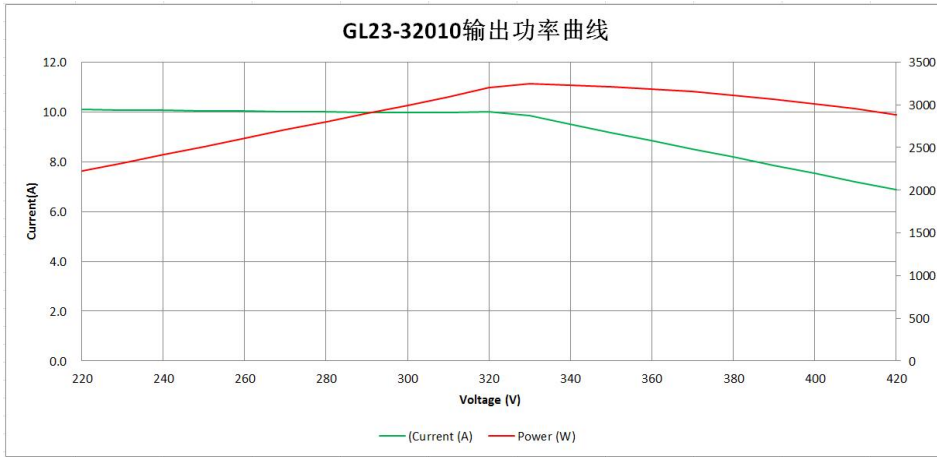
XIII. Efficiency Curve

220V Transverter 60V Efficiency Curve

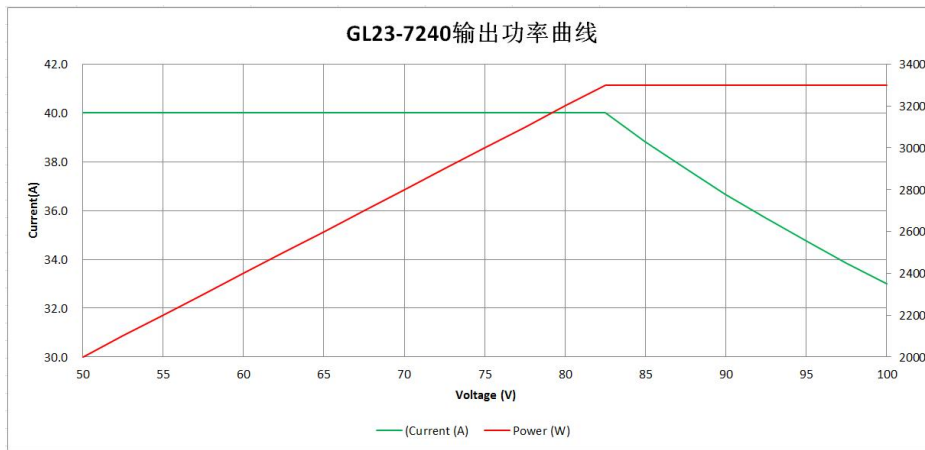


XIV. Characteristic Curve

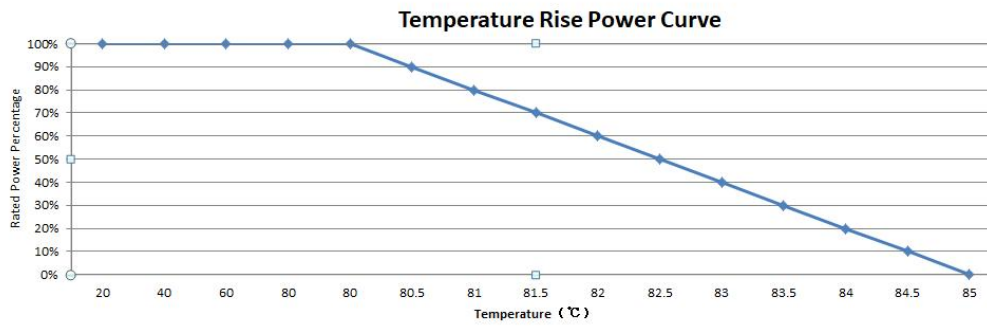
GI23-32010 Output Power Curve



GL23-7240 Output Power Curve

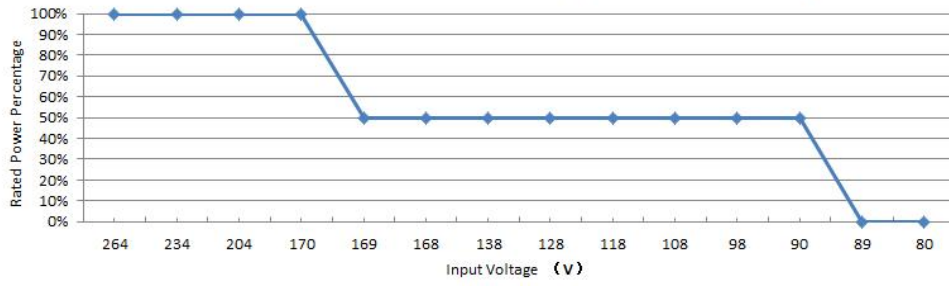


Temperature Rise Power Curve

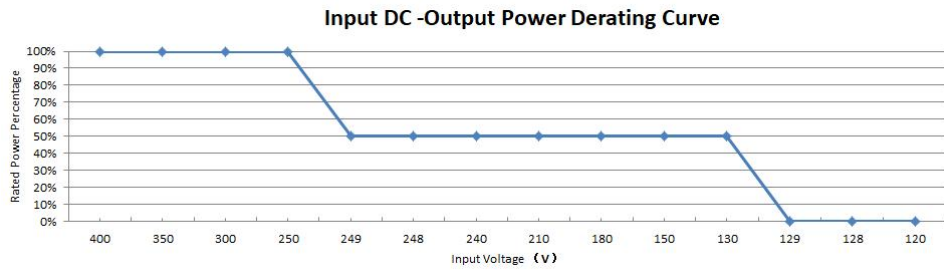


Input AC-Output Power Derating Curve

Input AC -Output Power Derating Curve



Input DC -Output Power Derating Curve

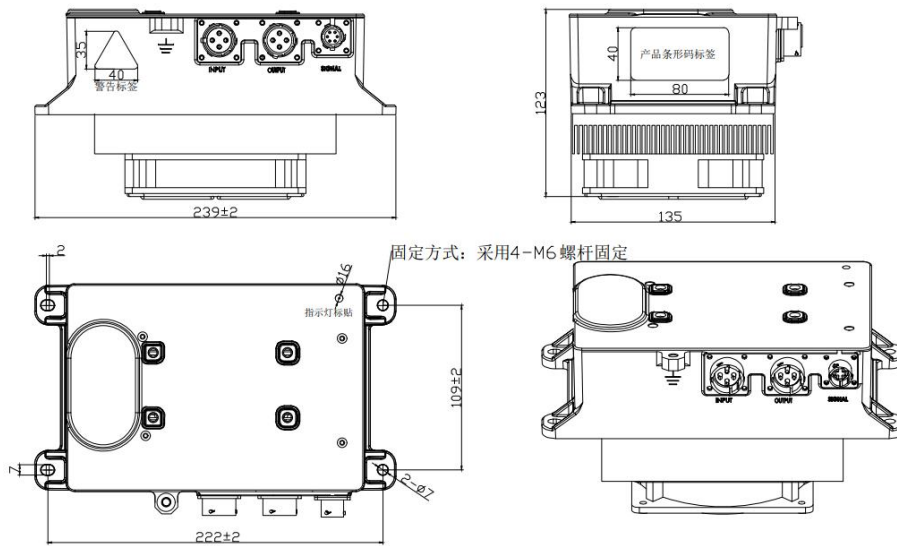


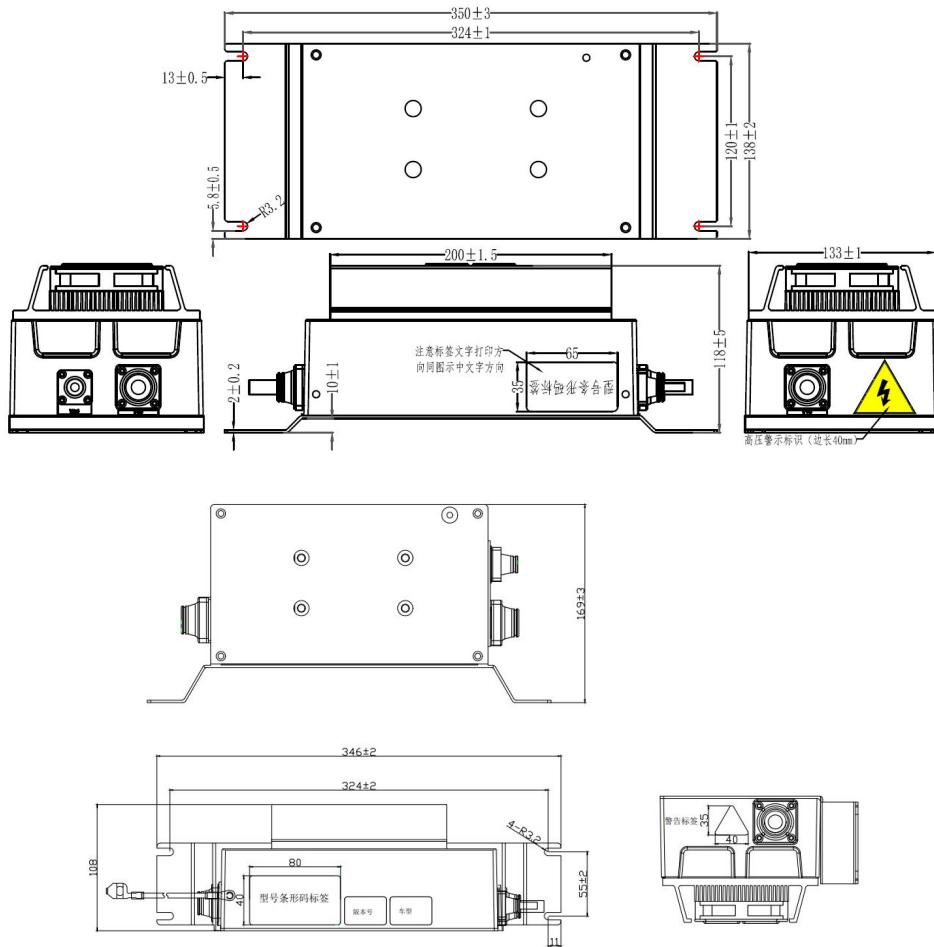
XV. Dimensions and Weight

Square Type: Size (L*W*H) 239mm*135mm*1123mm

Rectangular Type: Size(L*W*H)350mm*138mm*118mm, 346mm*108mm*169mm

Weight: Single Machine 5KG, With Package 5.5KG










XVI. Label






CAN Controlled Lithium Battery:

<p>MODEL: GL23-7240 零件名称: 锂电池充电器 INPUT:90~264V AC 16A INPUT:130-400V DC 16A OUTPUT:48V-101V 40A MAX 3300W MAX</p> <p>S/N:23A240001</p> 	<p>HZKM Li-ion BATTERY CHARGER</p> <p>配置号: C1000 料号:</p>    
--	---

Enable Controlled Lithium Battery :

MODEL: GL23-7240 零件名称: 锂电池充电机 INPUT:90~264V AC 16A INPUT:130-400V DC 16A OUTPUT:48V-101V 40A MAX 3300W MAX S/N:23A240001 	HZKM Li-ion BATTERY CHARGER 配置号: E5000 CV:87.6V CC:40.0A 24S LiFePO4 200AH    
--	--

Lead-acid Battery:

MODEL: GL23-7240 零件名称: 铅酸电池充电机 INPUT:90~264V AC 16A INPUT:130-400V DC 16A OUTPUT:72V 40A MAX 3300W MAX S/N:23A240001 	HZKM Lead BATTERY CHARGER 配置号: P7010 Battery:Trojan J185H-AC 72V    
--	---

The finished material label is affixed to the top fixed position, Length 80mm, width 40mm, PET coated paper

Product Serial Number:

S/N: 23 A 24 0001

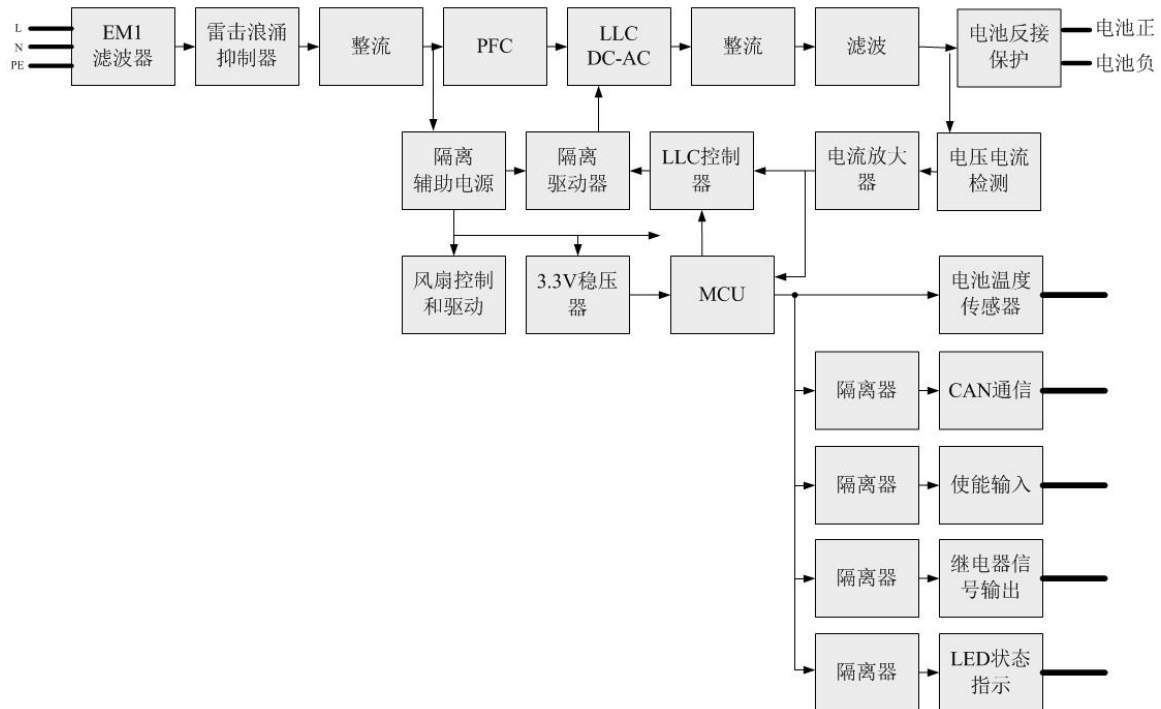
S/N:	Serial Number Fixed Word
27	GL23 Series Products
A	A for Year 2022, B for Year 2023, C for Year 2024, D for Year 2025.....
24	Week(s)
0001	Serial Number 0001—9999

Item No.:Fill in the finished ERP Material Number

Part Number:Leave blank if the customer does not specify

Bar Code, CODE-3

XVII. Principle Block Diagram



XVIII. Charging Indicator

Program-controlled charging (lead-acid battery, lithium battery controlled by enable line, etc.)

Stage	Term	LED Indicator Light	Remarks
/	No AC Power	Turn Off	
S1	Battery open circuit	Red, green and yellow each 1 second, off 3 seconds, cycle	Battery not detected when powered on
S2	Low Voltage Charging	Check the failure status indicator	Unable to start charging
S3	Pre-charging Stage (trickle charging)	Red on 0.25S off 0.75 second, green on 0.25S off 0.75second	
S4	Constant Current Charging Stage	red flash 0.5S on, 0.5S off	
S5	Constant Voltage Charging Stage	yellow flash 0.5S on,0.5S off	
S6	Full Stage	Green Light Always On	
	Timeout Filling Stage	Green Flash 1S On 1S Off	Charging time or charging capacity exceeds

S7	Supplementary power stage	Yellow Slowly Flash 0.25S On 0.75S Off	
----	---------------------------	---	--

CAN-controlled charging:

Phase	Term	LED Indicator	Remark
/	No input power supply	Off	
S1	Stand by	Yellow Light Always On	After power on, before receiving the charging instruction.
S2	Charging	Green Light Flash, 1S On 1S Off	Charging process
S3	Stop (Full Charge)	Green Light Always On	After receiving the instruction to stop charging

XIX.Fault Indicator Light

Fault Code	Fault Name	Local LED indicator	External LED Indicator
F1	Communication Timeout Fault	Red Flash 2 times, Green Flash 1 time, Interval 3s Cycle	Red Flash 2 times, Interval 3s Cycle
F2	AC Voltage Fault	Red Flash 3times, Green Flash 1 time, Interval 3s Cycle	Red Flash 3 times, Interval 3s Cycle
F3	Battery Voltage Too Low	Red Flash 4 times, Green Flash 1 time, Interval 3s Cycle	Red Flash 4 times, Interval 3s Cycle
F4	Battery Voltage Too High	Red Flash 5 times, Green Flash 1 time, Interval 3s Cycle	Red Flash 5 times, Interval 3s Cycle
F5	High Temperature Fault	Red Flash 6 times, Green Flash 1 time, Interval 3s Cycle	Red Flash 6 times, Interval 3s Cycle
F6	Charging Time out	Red Flash 7times,Green Flash 1 time, Interval 3s Cycle	Red Flash 7 times, Interval 3s Cycle
F7	Charging Capacity Exceeds	Red Flash 8 times,Green Flash 1 time, Interval 3s Cycle	Red Flash 8 times, Interval 3s Cycle
F8	Hardware Fault	Red Flash 9times,Green Flash 1 time, Interval 3s Cycle	Red Flash 8 times, Interval 3s Cycle

Remarks:

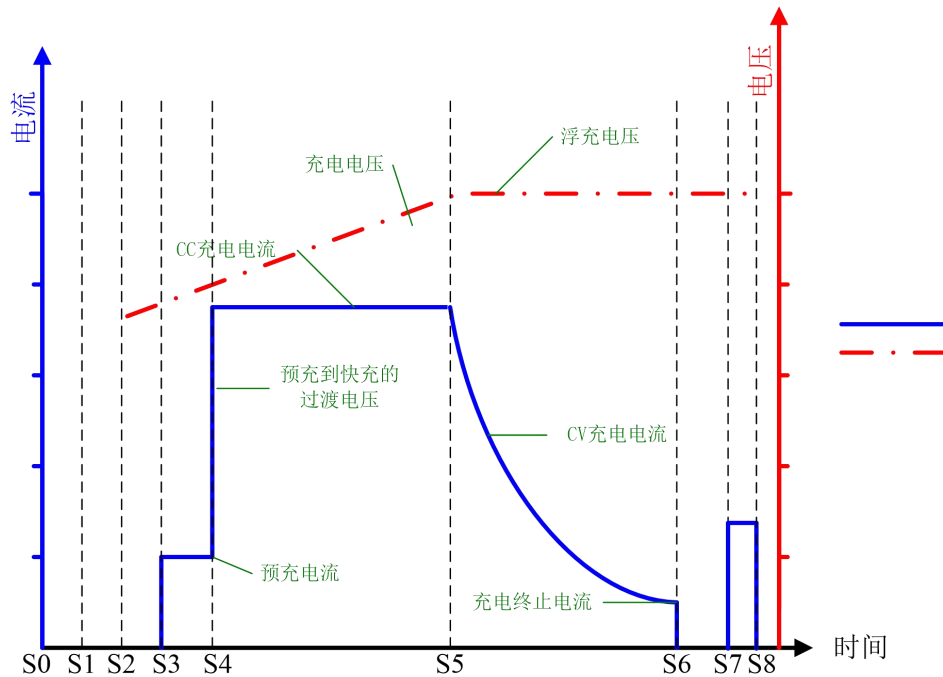
Report F3, F4, F6 and F7 fault codes, please check whether the battery voltage and capacity match correctly, or serious over discharge;

Report the F2 fault code, please check to make sure that the input voltage is in the normal range, or unplug the AC power plug and re-insert it in 1 minute.

Report the F8 fault code, please check to make sure that the input voltage is in the normal range

and whether the battery voltage matches correctly, or unplug the AC power plug and re-insert it in 1 minute. If it does not work properly, you need to return to the factory for maintenance.

XX. Typical Charging Curve (Lithium Battery)



锂电池电压和电流的充电曲线

Charging Curve of Voltage and Current of Lithium Battery

Remarks:

1. Each conversion voltage, current point, protection point and limit point can be customized.
2. Unless required by the customer, the fully charged supplementary power function (S7) is turned off by default.
3. If the charging time expires (exceeds the total time limit), it will not enter the fully charged supplementary power function (S7).

GL23-4840 16 series lithium iron phosphate battery, rated voltage 3.2V, maximum charging voltage 3.5V, rated capacity

Stage	Term	Voltage Value	Current Value	Stage electricity protection	Total electricity Protection	Stage Time Limit	Total Time Limit	Remark
S0	Power On	/	/	/	/	/	/	
S1	Battery Open Circuit	56.0V	0A	/	/	/	/	
S2	Battery Voltage Too Low	≤24V	0A	/	/	/	/	
S3	Pre-charging Stage (Trickle)	24-40V	5A	0.2C	1.2C	240min	8H	
S4	Constant Current Charging Stage	40-56V	35A	1.2C		420min		
S5	Constant Voltage Charging Stage	56V	5-30A	0.2C		30min		
	Charge Termination Current	/	≤0.025C	/		/		
S6	Full Charge Stage	53V	0A	/	/	/	/	
S7	Supplementary Charging Stage	≤53V	≤5A	0.2C	/	/	/	
S8	Supplementary Charging Full Stage	/	/	/	/	/	/	

C=200AH

GL23-7240 20 series of ternary lithium batteries, rated voltage 3.7V, maximum charging voltage 4.15V, rated capacity

C=240AH

Phase	Term	Voltage Value	Current Value	Stage electricity protection	Total electricity Protection	Stage Time Limit	Total Time Limit	Remark
S0	Power On	/	/	/	/	/	/	
S1	Battery Open Circuit	56.0V	0A	/	/	/	/	
S2	Battery Voltage Too Low	≤40V	0A	/	/	/	/	
S3	Pre-charging Stage (Trickle)	40-63V	2A	0.2C	1.2C	240min	8H	
S4	Constant Current Charging Stage	63-83V	40A	1.2C		280min		
S5	Constant Voltage Charging Stage	83V	5-40A	0.2C		30min		

	Charge Termination Current	/	≤0.025C	/	/	/	/
S6	Full Charge Stage	83V	0A	/	/	/	/
S7	Supplementary Charging Stage	≤83V	≤5A	0.2C	/	/	/
S8	Supplementary Charging Full Stage	/	/	/	/	/	/

XXI. Standard CAN Message (Extended Frame)

Message 1:(ID:0x1806E5F4) CAN1000 250K

OUT	IN	ID				Cycle
BMS	VCU(BMS)	P	R	DP	PF	1000ms
		0x06	0	0	0x06	
Data (MOTOROLA Format)						
Place	Data Name		Remark			
Byte 1	Max Allowable Charging Terminal Voltage High Bytes		0.1V/bit			
Byte 2	Max Allowable Charging Terminal Voltage Low Bytes					
Byte 3	Max Allowable Charging Current High Bytes		0.1A/bit			
Byte 4	Max Allowable Charging Current Low Bytes					
Byte 5	Control		0x00: The charger is turned on; 0x01: Charger Off Output 0x02: The charger turns on and works in resistive load mode Other: Charger Off Output			
Byte 6	Reserved		Reserved			
Byte 7	Reserved		Reserved			
Byte 8	Reserved		Reserved			

Note 1: After the charger is powered on, if the charging control information of BMS is not received for 5 seconds, a communication error will be reported. During the charging process, if the charging control information is not received in 1s, the charger stops the output and reports a communication error.

Message 2:(ID: 0x18FF50E5) CAN1000 250K

OUT	IN	ID				Cycle
VCU(BMS)	BCA Broadcast	P	R	DP	PF	1000ms
		0x06	0	0	0xFF	
Data (MOTOROLA Format)						
Place	Data Name		Remark			
Byte 1	Charger output voltage high byte		0.1V/bit			
Byte 2	Charger output voltage low byte					
Byte 3	Charger output current high byte		0.1A/bit			
Byte 4	Charger output current low byte					
Byte 5	Status_Flag2 Status 2 Fault Status Message		Bit7: 0=Normal, 1=Over Battery Voltage; Bit6: 0=Normal, 1=Fan Fault; Bit5: 0=Normal, 1=VCC Output Fault; Bit4: 0=Normal, 1=Communication Timeout Fault; Bit3: 0=Normal, 1=Battery Reverse Protection; Bit2: 0=Normal, 1=AC Over Voltage Protection; Bit1: 0=Normal, 1=Over Temperature Protection; Bit0: 0=Normal, 1=Hardware Fault;			
Byte 6	Status_Flag3 Status 3 Working Status Message		Bit7: 0=Normal Voltage, 1=Zero Voltage; Bit6: 0=Normal, 1=Current Limited; Bit5: 0=VCC Off, 1=VCC Output; Bit4: 0=Enable Null, 1=Enable Works; Bit3: 0=On C.C, 1=On C.V; Bit2: 0=Charging mode, 1=Discharge mode; Bit1: 0=Battery Load, 1=Resistance Load; Bit0: 0=Stop Charging, 1=Charging;			
Byte 7	Charger Temperature		1°C/bit, Offset-40			
Byte 8	Reserved					

Note 1: When the charger is powered on, the internal circuit is stable and there is no fault, the 12V signal VCC will be output and broadcast messages will be sent periodically. When waiting, the charge control information of BMS can not be received for 5 seconds in a row, then a communication error is reported.

XXII. Application Instructions

1. Please check whether the voltage and capacity of the lithium battery match the

charger. Incorrect battery type, voltage, capacity may cause malfunction or damage, risk of fire, electric shock

2. Please check that the input AC voltage matches the charger. Wrong AC power supply may cause failure or damage, risk of fire and electric shock

3. The lithium battery needs to be protected by the protection board or BMS for charging and discharging. Unprotected battery packs cannot be charged with this charger.

4. When charging, the user should first connect the battery plug reliably, and then insert the AC power plug for supply power. When you stop charging, remove the AC plug first, and then disconnect the battery.

5. When replacing the battery pack, please disconnect the AC power plug first, and wait for all the LED lights of the charger to go out before replacing the battery pack. The operation of directly replacing the battery pack without disconnecting the AC power supply may result in no charging or full charging.

6. Pay attention to the charging temperature range of lithium batteries, which is generally required to be 40 degrees. Although the charger can work well beyond this temperature, it may cause serious irrecoverable damage to the lithium battery, or lead to battery damage and fire risk.

7. The charger will heat up when it is charged. Please put the charger in a well-ventilated room and do not cover it. In extreme cases, the shell temperature within 75 degrees is normal, please do not touch to prevent scalding.

8. When not using the charger, please remove the connection between the charger and the alternating current and the connection between the charger and the battery.

9. Please use this charger indoors to avoid rain and sun exposure.

10. Do not turn on the charger without permission. There is a risk of electric shock.

11. Children are not allowed to operate chargers.

12. Please do not insert the foreign body into the heat dissipation window of the charger.