

BATTERY CHARGER

Longrun Series

Instruction Manual



1.Overview

Longrun Q2 series vehicle intelligent charger can make energy supplement for vehicle power battery under the status of parking, which use civil 16A socket power for power supply, the charging process is controlled automatically by charging procedures so as to satisfy the requirements of temperature resistance and anti-vibration.

2.Product parameters reference charger models

Input voltage range	Input current	Output Rated voltage	Max charging voltage	Charging current	Power factor	Efficien cy
AC 90 265V	≤ 16A	12V	15V	5-40A	≥0.99 Half load	≥93% Full load
		24V	30V	5-40A		
		36V	45V	5-40A		
		48V	66V	5-40A		
		60V	82.5V	5-40A		
		72V	99V	5-40A		
		84V	116V	5-40A		
		96V	132V	5-32A		
		144V	198V	5-23A		
		312V	440V	5-10A		

3. Working environment and Electrical parameters

NO.	Item	Technical target
1	Working temperature	-40℃ ~+60℃
2	Storage temperature	-40℃ ~+90℃
3	Relative humidity	5%~95%
4	Heat dissipation method	Forced cooling

Input	Frequency rate	45-65Hz
	Standby power consumption	≤ 5W
Main output	Output type	Constant pressure/current
	Output power	Refer to charger model
	CV Accuracy	±1%
	CC Accuracy	±1%

	Ripple voltage coefficient	5%
Low voltage output	Output type	CV
	Output voltage	13.8V optional
	Rated current	5A
	Precision of constant voltage	±2%
	Max current	5.5A±0.5A
	Output power	≥ 62.5W
	Ripple voltage coefficient	1%
CAN Communication	CAN communication	Optional
	Baud rate	125Kbps □ 250Kbps □ 500Kbps
	Terminating resistor	No

4. Protection feature

Protection	Input over-voltage protection	AC264V
	Input under-voltage protection	AC90V
	Output over-voltage protection	Exceed max output voltage +1% ,stop output.
	Output start voltage	Below min output voltage -5% ,stop output..
	Output over-current protection	Exceed max output current +1% ,stop output.
	Over temperature protection	Power down from 85 □ ; Shut off At 90 □
	Short circuit protection	Stop output
	Reverse battery protection	Stop output
	Ground protection	≤ 100mΩ
	C A N Communication protection	Automatically stop output when CAN communication fails
	Power failure protection	Yes
	Output over voltage protection, Output over current protection Output short-circuitprotection, Output reverse protection Charger over temperature protection, Battery over temperatureprotection	

5.Expansion function

Up to 93% work efficiency,Strong protection function

Working temperature scope of wide temperature range

100% full loading aging test,APFC cosΦ □ 0.98

Quake proof degree of automotive grade

6.Installation and Interface

6.1 The charger produced by our company has intelligent temperature compensation function, including mainly two aspects: One is stopping charging to protect battery when the battery is too hot; the other is to achieve best charging effect according to environmental temperature adjusting charging voltage, so stick tightly the vehicle charger temperature sensor to the battery, it is better to put between two batteries.

6.2 To ensure all the air vent not to be blocked, the heat produced from charger working should be ensured to exhaust out of the vehicle smoothly, the space should not be at seal state to avoid influencing the normal working because of higher temperature.

6.3 Please do not close to pyrotoxin, there should be enough space near charger so as to ensure ventilation,dust proof should also be taken into consideration to avoid influencing heat dissipation effect because of surface dust accumulation.

6.4 Charger installation position should take water proof into consideration, pay attention to keep away from the water splashed from wheels and other parts such as droplet of condenser to avoid the liquid penetrating inside of charger gradually to influence the normal working.

6.5 To ensure the alternating current voltage and current is consistent with the allowed input voltage and current, any query, please contact the supplier or local power supply bureau.

6.6 In view of safety and electromagnetic compatibility, the charger equipped with three plug and suitable for the grounding socket.

6.7 If alternating current power supply need extension line, to ensure the extension line can bear charger maximum input current and make the length of extension line be in a certain limit to avoid influencing the normal work of charger.

6.8 As for the connection line of charger and battery, the maximum current drop of pressure should be low than 1% of current and voltage, otherwise may influence the charging effect, at the same time, the diameter of lead wire should satisfy the output current value.

6.9 Charger mounting plate should be fixed on horizontal level on the vehicle and keep heat radiator vertical, there should be left more than 10 cm space between radiator and around side to ensure good heat radiation status.

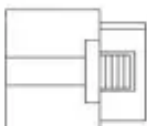
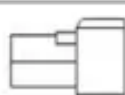
6.10 If the battery is found to be abnormal or damaged during working process, please drop the power adapter and connector immediately, then contact the supplier.

6.11 Not allowing disassembling the charger, open the cover of charger casually may result in electric shock hazard or other damages.

6.12 In order to avoid charger wiring harness damage, please do not put the matters onto charger wiring harness or the places easy to be stamped, if there is damage of wiring harness, please change immediately.

Methods of Operation steps

- Connect the output terminal of the charger to the battery terminal first.
- Connect the input plug of the charger to three-hole AC power socket until the charger turns into normal charging process (observe the LED Indicator), then Charger will automatically charge the batteries. When fully charged, the charger will automatically shut down, and display ‘full power’.
- If observed the battery become overheating or ballooning during charging process, you should stop the charger immediately by unplug the plug from the AC socket.

Input Cables								
Terminal Model	DJ7031-4.8-11	 Direction of view: form the cables to terminal.	Needl e No.	Wire Color	Wire core diameter	Description		
			1#	brown	1.5	L Live wire		
Terminal Model for matching	DJ7031-4.8-21		2#	blue	1.5	N Neutral wire		
			3#	Yello w and green	1.5	PE Protective grounding wire		
Signal Cables					Output Cables			
Needl e No .	Wire Color	Wire core diameter	Descripti on	Needle No.	Terminal Model	RNB3.5-8		
1#	brow n	DJ7031Y-2.3-21 external LED indicator interface	Red	DJ7031Y-2.3-11	Needle No.	Wire Colo r	Wire core diameter	Description
2#	Blue		GND		+	Red	2.5mm ²	Output positive pole
3#	yello w		Green		-	Blac k	2.5mm ²	Output negati
4#	purpl e	DJ7021-1.5-21 Battery	anode of sensor	DJ7021-1.5-11	 J1 DJ7031Y-2.3-21 外接指示灯			
5#	white	Temperature sensor interface	cathode of sensor					
10#	orang e	DJ7021-2-11 Forbidden signal interface (normal close)	COM	DJ7021-2-21	 J4 DJ7021-2-11 禁行开关			
11#	grey		NC					
Diameter	Either in 0.5 mm ²				 DJ7031Y-2.3-11			
					 DJ7021-1.5-11			
					 DJ7021-2-21			
					Direction of view: a.form the cables to terminal.			
					b.Forbidden signal interface(normal close)			
					Electric Parameter □ (1A/30Vdc □ 0.5A/125Vac)			

7.Indicators state

Red indicator flashes every 1 seconds: Battery amount<80%

Green/Yellow indicator flashes every 1 seconds: Battery amount>80%

Green indicator always on: Battery amount=100%

The charger installed a LED indicator internally, this built-in indicator display information through the window on the shell of charger. Besides the charger provides an external LED indicator interface that can connect the optional external LED indicator(optional).

Fault indication

Red indicator flashes every 3 seconds:Battery abnormal

Yellow indicator flashes every 3 seconds: City electric abnormal

Green indicator flashes every 3 seconds: Charger abnormal

8.Common faults and solutions

If there is fault of charger, please check whether the wiring is properly connected;

If you troubleshoot the wiring,please handle according to the below table:

Fault indication	Specific reason
City electric abnormal	Error input voltage, thin input wire line
Charger abnormal	The charger is over heat
Battery abnormal	Output short-circuit, There is no battery or reverse battery, lower voltage of battery, battery over heat.

Solutions:

Error input voltage: To check if the input voltage conformed to the requirement or not.

Thin input wire line: To change the suitable input wire line.

Charger over heat: Pay attention to ventilation at the working place of charger, covering anything on the charger is not allowed.

Output short-circuit: To check the wire line of output terminal to exclude short-circuit.

There is no battery or reverse battery: Check the battery connection, connect the battery correctly.

Lower voltage of battery: to manage to make battery voltage be up to the starting voltage of charger

Battery over heat: Pay attention to ventilation; if there set outside temperature sensor, then stick it to the battery surface tightly.(The temperature sensor of portable charger is inside of charger)

9. Warranty

9.1 The company guarantees that the products produced by the company have been strictly quality confirmation, during the warranty period of the product manufacturing defects and failure, they're all repairable .

9.2 The following conditions fall within the scope of product warranty: damage caused by transportation or product quality during the warranty period; Damage caused by non-human factors during normal use within the warranty period.

9.3 In the whole process of operation, maintenance and repair of the product, the relevant specifications on this manual and the machine label must be followed. The manufacturer disclaims that it is not responsible for the operation results of the user's violation of such requirements.

If the fault is caused by follow reasons, it cannot be repaired free of charge:

Damage caused by illegal operation.

Without authorization, open the shell or repair, lead to damage.

Damage caused by improper transportation, such as knocking, collision, or falling.

Damage caused by water inlet, immersion, damp or other irresistible natural calamities.

Damage caused by instantaneous over voltage in power grid (20% higher than Rated input voltage).

Damage caused by pulling input or output cable seriously.

10. Regularly Maintenance

- Check sockets regularly, if the connection between the socket and the plug is loose or poor contacting, they should be firmly connected or replaced before the charger be used. The poor contact may result in overheating and burning of the plug and socket, and even cause a fire.
- Check the leakage protection air breaker regularly using the test button to ensure its protection function is valid.
- Make sure to use a dedicated input cable and plug for the charger.
- Make sure that there are no foreign matters between the charger's shell and the cooling fan to avoid damage to the fan.
- Make sure that the appearance of battery is not ballooning; the battery is not overheating when

charging.

11. Packaging, transportation and storage

Packaging: Product name, model, specification, name of manufacturer are printed on the label .

The box contains the products and manual.

Transportation: It is suitable for transportation by car, boat and airplane. It should be protected from sun, moisture and civilized transportation during transportation.

Storage: When the product is not in use, it should be stored in a packing box. It should be kept in a clean, dry and well-ventilated environment at -30 °C ~ 90 °C . Avoid exposure to sunlight, fire and water, if the storage time is too long (more than 1 year), it should be tested by professional before use.

Remark: The Company has the final explanation right for this instruction, if there is revision, no prior notice.

CHENGDU LONGRUN CHUANGSHI TECHNOLOGY CO.,LTD

Zip code :610000

Feedback : longruncs2016@163.com

Web :<http://www.longruncs.com>

<https://longruncs.en.alibaba.com>

Address :366 Ronghua South Road,High-tech Zone,Chengdu , Sichuan Province, China

Attached file

CAN2.0 communication protocol for reference

Protocol type	Motorola
Baud rate	250K
Charger receives CAN ID	0x1806E5F4
Charger emits CAN ID	0x18FF50E5
Description	Standard Communication Protocol

Message description:

Message1

OUT	IN	CANID	Cycle （ms）
CCS	BCA	0x1806E5F4	1000
Data			
Location	Data name		
BYTE1	Output voltage high byte		0.1v/bit offset □0 case□ V set=3201, Corresponding voltage is 320.1V
BYTE2	Output voltage low byte		
BYTE3	Output current high byte		0.1A/bit offset □ 0 case□ I set=582, Corresponding current 58.2A
BYTE4	Output current low byte		
BYTE5	Control		0□ Turn on the charger and start charging ; 1□ Battery protection, charger turns off output .
BYTE6	Keep		
BYTE7	Keep		
BYTE8	Keep		

Messag2

OUT	IN	CANID	Cycle (ms)
CCS	BCA	0x18FF50E5	1000
Data			
Location	Data name		
BYTE1	Output voltage high byte		0.1v/bit offset □0 case□V set=3201 Corresponding voltage is 320.1V
BYTE2	Output voltage low byte		

BYTE3	Output current high byte	0.1A/bit offset □ 0 case□ I set=582, Corresponding current 58.2A.The highest is the symbol of BIT ,0 for charging ,1 for discharging .
BYTE4	Output current low byte	
BYTE5	Status indicator STATUS	
BYTE6	Temp(Only for individual, others may not)	Internal temperature.Offset □ 100. case□ 150, Corresponding temperature is 50 degrees.
BYTE7	Keep	
BYTE8	Keep	

Messag3

STATUS	Mark	Description
Bit0	Hardware failure	0: Normal ;1: Hardware failure.
Bit1	Charger temperature	0: Normal ;1: Charger over temperature protection.
Bit2	Input voltage	0: The input voltage is normal;1: The input voltage is wrong and the charger stops working.
Bit3	Start status	0: Battery connection is correct; 1: The battery is not connected or battery is reversed.
Bit4	Communication status	0: Communication is normal;1: communication reception timeout.
Bit5		
Bit6		
Bit7		

Way of working

BMS sends control information (message 1) to the battery at a fixed interval of 1s. After the charger receives the message, It will Stream settings to work through the received voltage and current . If no message is received within 5 seconds, it enters a communication error state and turns off the output.

10. 2 Charger sends broadcast information (message 2) every 1s,The display meter can display the status of the charger according to the information.