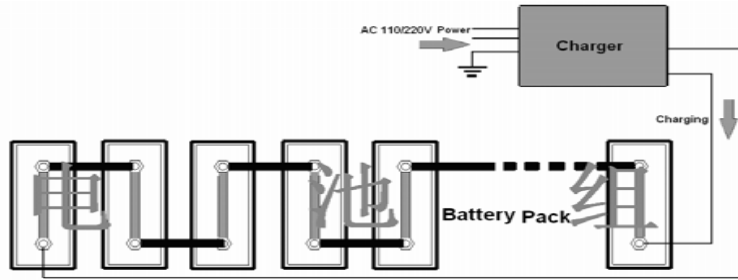


1. Overview

700W Series on-board charger is an intelligent charger with small size, high efficiency, high protection grade and high seismic grade.

The high-voltage DC output connects directly to the power battery and AC input connects to the vehicle's charging interface socket. Connection diagram as illustrated below.



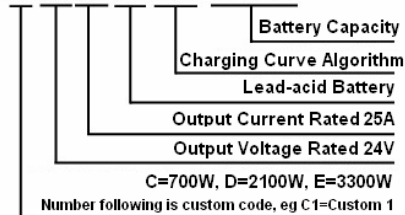
2. Model

Model	Rated Output Voltage	Rated Output Current
HQ -C-24-25-XX-XX	24V	25A
HQ -C-48-15-XX-XX	48V	15A
HQ -C-60-12-XX-XX	60V	12A
HQ -C-72-10-XX-XX	72V	10A

Model Description

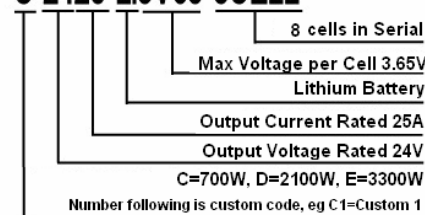
Charger Model for Lead-acid Battery

C-2425-PB106-180AH



Charger Model for Lithium Battery

C-2425-Li3V65-8CELL



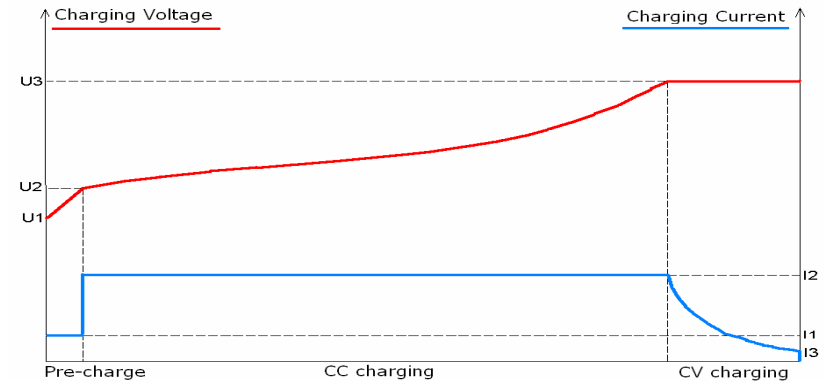
3. Features

1. High efficiency up to 95%
2. Strong protection function
3. Wide temperature range of operating
4. 100% Full load aging test
5. Automatic applicable two typical input voltage 110/220VAC without manual switching

6. No fan, completely quiet work
7. Full-sealed structure, protective level IP66
8. Automobile levels of ant-vibration grade
9. Intelligent temperature compensation function in the charging process, greatly extending the lifespan of battery

4. Charging Curve & Feature

1. CC/CV Charging mode: (for Lithium Battery)



$U1 = \frac{U3}{2}$, $U2 = n_{\#} \times 2.5V$, $U3 = \text{Maximum voltage for the battery pack}$
 $I1 = \frac{I2}{2}$, $I2 = \text{Maximum charging current for the battery pack}$, $I3 = \frac{I2}{6}$

① Pre-charge: It only enters into pre-charging process when the battery pack voltage is under $U2$ (The charger does not start when battery pack is under $U1$), then it operates in a constant current charging $I1$, finally, the pre-charging process is completed when voltage rises to $U2$.

② CC Charging: It operates in a constant current charging $I2$, then the CC charging ends when voltage reaches to $U3$.

③ CV Charging: Constant voltage charging with $U3$, the whole charging process is completed when current reduces to $I3$.

4.2 According to different lead-acid types, there are different kinds of charging curves.

5. Reliability Test

Index	Data definition	Remark
MTBF	150,000 H	Reliability is created by device failure rate

6. Environmental Working

S/N	Item	Tech Index	Unit
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1	Working Temperature	-40 ~ +50	°C
2	Storage Temperature	-40 ~ +90	°C
3	Relative Humidity	5% ~ 95%	/
4	Cooling	Natural Cooling	/
5	Altitude	3000	m

7. Electrical Characteristics

Minimum Frequency	Typical Frequency	Maximum Frequency
40Hz	50Hz/60Hz	70Hz

7.1 Input characteristics

Input currents and output powers (Input range available 110/220VAC±20%)

Input Volt	Input Cur I_N	Output Max	Input Volt	Input Cur I_N	Output Max
90V	$I_N \leq 10A$	700W	185V	$I_N \leq 5.5A$	700W
110V	$I_N \leq 8.5A$	700W	220V	$I_N \leq 4.5A$	700W
130V	$I_N \leq 7.0A$	700W	265V	$I_N \leq 3.8A$	700W

7.2 Output characteristics

Item	Rating Value	Error Range
DC Output Power - rating	700W	/
Efficiency	≥95%	/
Power Factor	0.7	/

7.3 Protection Features

- Output Over-voltage Protection
- Output Over-current Protection
- Output Short-circuit Protection
- Output Reverse Connect Protection
- Charger Temperature Protection
- Battery Temperature Protection

7.4 Connectors

Item	Minimum Wire Core	Model of Connector	Mating Connector	Remark
AC Input	1.5mm ²	10A Male Connector	10A Female Connector	Be earthed only
DC Output	4mm ²	Weipu SP2113/P2	Weipu SP2110/S2	1-Input+, 2-Output-
Expand	/	Weipu	/	See page 8.1

Function	SP1312/S7
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7.5 Wire-harness

Item	Wire Core	Length	Harness processing	Remark
AC Input	1.5mm ²	/	Close-triangle plug	PE line only
DC Output	4mm ²	/	Weipu SP2113/P2	Price excl.
Expand function	0.3 mm ²	/	Weipu SP1310/S7	See page 8.1

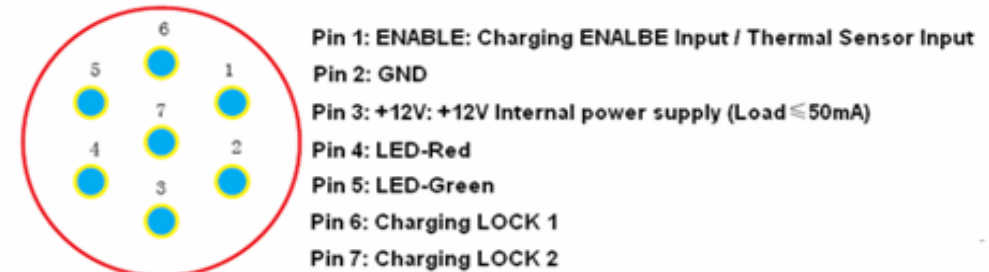
7.6 Stand by Power Consumption: Less than 5W

7.7 Impulse Starting Current: Less than 5A

7.8 Input Frequency

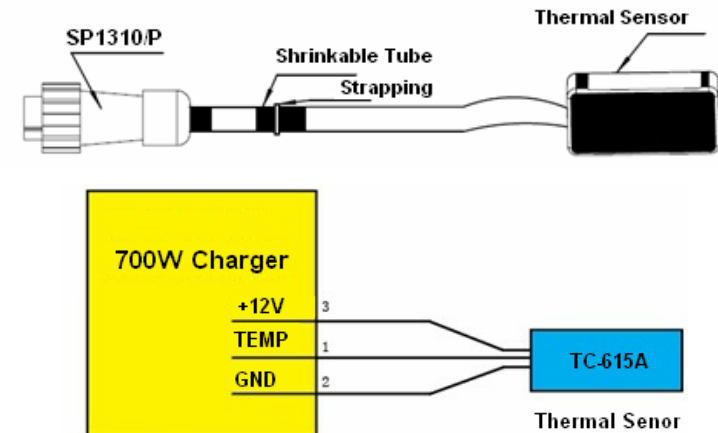
8. Expansion Function: Choose the accessories according to the actual needs

8.1 Interface Definition: Weipu SP1312/S7 7-PIN socket Definition



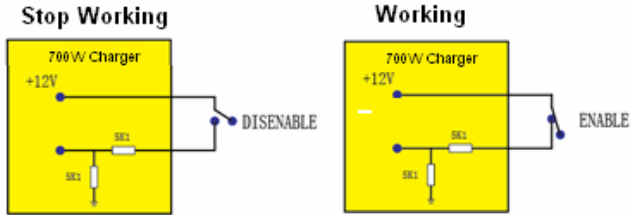
8.2 Thermal Sensor (to Lead-acid battery charger)

A thermal sensor which is used to fix to one of cells is recommended to lead-acid battery charger.



8.3 ENABLE Sign: SP1312/S7 Socket Pin1, Pin2, Pin3 recommended to lithium battery charger. Control the charger by ENALBE cables. (The charger works normally when enable is short-circuited and it does not work when enable disconnects)

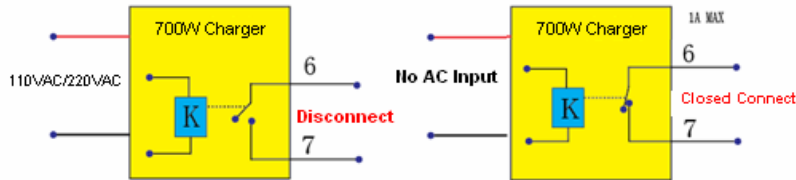
ENABLE Function



SP1312/S7 7-pin Socket (PIN1 & PIN3)

8.4 Charging Lock up Signal (Relay Normal Closed Contact)

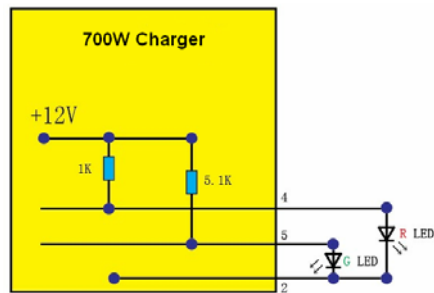
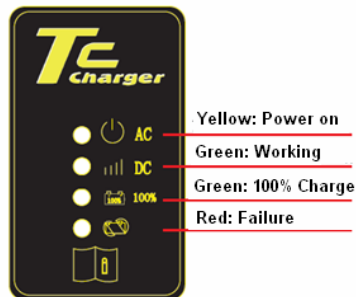
Charging Locking Function



SP1312/S7 7-pin Socket (PIN6 & PIN7)

8.5 External Charging LED Indicator (Standard)

700W Charger LED State



SP1312/S7 7-PIN Socket, Pin2, Pin4, Pin5

Failure Indicator State	Failure
1 _ _ _ _ _	Wrong Battery
1 _ 1 _ _ _	Charging Overtime
1 _ 1 _ 1 _ _	Battery Temperature Error

“1”: LED flashes 1 second, “_” : LED goes off 1 second

9. Safety features

9.1 Voltage-withstand

Terminals to earth (shell) and the dielectric strength of circuits without electrical connection to each other should withstand the test voltages (See Table 9). The testing voltage is AC voltage 50~60Hz. Test between terminals should not be a corona, ionization, arcing or breakdown phenomenon.

Input/Shell	1500V AC	1min	Leakage Current≤10mA
input/output	1500V AC	1min	Leakage Current≤10mA
Output/Shell	500V AC	1min	Leakage Current≤10mA

9.2 Insulation Resistance

The insulation resistance between live circuit and ground (shell) is not less than 20MΩ under the environmental temperature (23±2) °C and relative humidity 80% ~ 90%.

9.3 Contact Current

When human or animal contacts one or more devices or equipment palpable components, the current flow should be no more than the contact current perception threshold requirement in GB/T13870.1-2008.

Contact Current	AC Current mA	DC Current mA
Limit Value	≤0.75	≤2

Grounding resistance is not more than 0.1Ω. Grounding wires must use yellow/green double color line.

10. Noise

Noise	Condition
≤55dB	Distance 1.5m, A weighted noise

11. EMC Properties

EMC accords with the article 11.3 of the electromagnetic environment test requirements in GB/T 18487.3-2001

12. Environmental Enclosure

Standard	Grade
GB4208-2008	IP66

13. Lightning Protection Grade

Lightning Protection Index	Test Standards
TBD	/

14. Cooling: Natural air cooling.

15. Dimension (L×W×H): 272mm(10.71") × 138mm(5.27") × 112mm(4.33")

N.W.: 1.90KG

