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Model No: ATC2K6-48S12-A	Version: V0
Nominal Energy:	Date released: 10-Dec-2019

Specification

2.6KW On-Board Charger Fan Cooled
Model No.: ATC2K6-48S12-A

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Revision History

Date	Revision	Change Description	Released	Approved
2019/11/10	V0	First Release	Alan	Alisa

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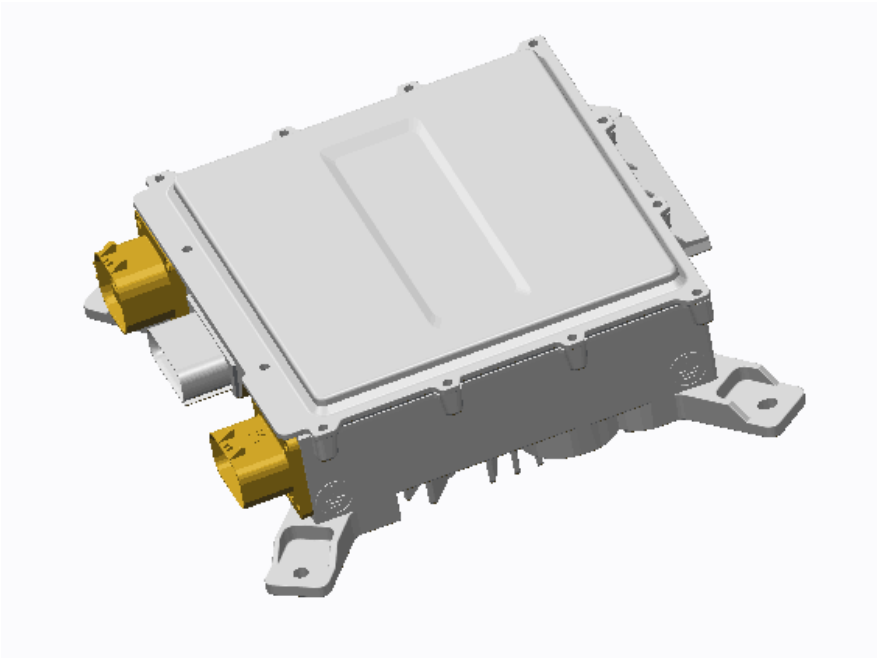
1、Overview

The On board charger of Model No. ATC2K6-48S12-A is the product designed to supplement electric energy for electric vehicle power battery according to the national standard of charger. The product not only has the advantages of high efficiency, small size, high stability, long life, etc., but also has the characteristics of high protection level, high reliability, complete protection function, etc. It is an ideal power source for electric vehicle charging. The charger has a built-in thermal sensing device with overheat protection (OTP) for automatic recovery. Fully sealed potting process in any complex environment without causing failures.

Key features & Benefits

* Support UDS diagnosis
* F ully sealed process
* Built-in temperature sensor
* CAN Wake-up function
* Reliable operation at -40° C to +55° C
* Immediately shut down the output under hazardous operating conditions (internal 90℃)



Outline map

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2、Industry Glossary

序號 No.	術語或縮寫 Term or abbreviation	說明 Description
1	BMS	電池管理系統（Battery Management System）
2	CAN	CAN 通訊網路（Controller Area Network ）
3	EV	純電動車（Electric Vehicle）
4	OBC	車載充電機（On Board Charger）
5	CC	恆流（Constant Current）
6	CV	恆壓（Constant Voltage）
7	OVP	過壓保護（Over Voltage Protection）
8	UVP	欠壓保護（Under Voltage Protection）
9	OCP	過流保護（Over Current Protection）
10	SCP	短路保護（Short Circuit Protection）
11	OTP	過溫保護（Over Temperature Protection）

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3、Guideline

This technical requirement reference standard includes but is not limited to the following standards. The following standard documents, regardless of date, the latest version (including all amendments) apply to this technical requirement.

序號 No.	標準編號 standard coding	標準名稱 standard name	備註 Notes
1	ISO 16750-2012	Road vehicles - Environmental conditions and tests for electrical and electronic equipment	
2	ISO 7637-2011	Road vehicles - electrical disturbances caused by conduction and coupling	
3	ISO 10605-2008 (GB/T 19951)	Road vehicles - test methods for electrical disturbances from electrostatic discharge	
4	ISO 11452 (GB/T 17619)	Road vehicles - Test methods for electronic interference components of narrow-band radiated electromagnetic energy	
5	ISO 6722-1-2011	Road vehicles -- Single-core cables -- Part 1 : Copper wire cables - Dimensions, test methods and requirements	
6	IEC 60664.1-2007	Insulation of equipment in low-voltage systems - Part 1: Principles, requirements and tests	
7	SAE J1742-2005	Test methods and general performance requirements for high-voltage electrical wiring connectors for vehicles on the road	
8	GB/T 2408-2008	Determination of the burning properties of plastics and vertical method standards	
9	GB/T 2423	Environmental testing of electrical and electronic products	
10	QC/T 895-2011	Conductive car charger for electric vehicles	
11	GB/T 20234-2015	Electric vehicle conduction charging connection device	
12	QC/T 413	Basic technical conditions for automotive electrical equipment	
13	QC/T 29106-2014	Automotive low voltage wiring harness technical conditions	

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14	GB/T 17626.5-2008	Surge (impact) immunity test	
15	Q/FT B102-2005	Vehicle product parts trace-ability labeling regulations	
16	GB/T 18384.3-2015	Electric vehicles - Safety requirements - Part 3: Protection against electric shock	
17	EN 62477-1	Power electronic converter systems and equipment: general safety requirements	
18	GB/T 4208-2008	Shell protection rating (IP rating)	
19	GB/T 17619-1998	Electromagnetic radiation immunity limits and measuring methods for motor vehicle electrical and electronic components	

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4、Technical Parameters

All specifications are typical at 25℃ unless otherwise stated.

4.1 Output Specifications

型號(Model)		ATC2K6-48S12-A
Output Voltage	Output Voltage Range	35~70V
	Output Current Range	0-40A
	Output Power	2600W@220VAC /1600W@110VAC
	Output Mode	恆壓(CV) 恆流(CC)
	Voltage regulation accuracy	±1%
	Current regulation accuracy	±2%
	Ripple voltage coefficient	≤5%

Remark: The verification of the above parameters requires code in normal mode (non-heating mode), and the electronic load is tested in CV mode.

4.2 Input Specifications

Input Specification	Maximum Input Voltage Range	AC 90~265V
	Nominal input voltage Range	AC 100~240V
	Input frequency range	47-63Hz
	Maximum input current	≤16A
	Power factor	> 0.98(100% load)
	Maximum power	≥93%(Full load)
	Standby power consumption	≤5W

4.3 Low Voltage Output

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Low voltage Output	Output way	CV
	Output voltage	12V
	Nominal current	5.5A
	CV accuracy	±2%
	Output Power	≤66W
	Ripple voltage coefficient	≤1%

4.4 Protection Features

Protection Features	Input OVP	AC270±5V off output, automatic recovery after fault removal
	Input UVP	AC85±5V off output, automatic recovery after fault removal
	Output OVP	When the maximum output voltage exceeds +2%,turn off the output, automatic recovery after fault removal
	Output UVP	The output voltage protection range is 33V ± 1V,when the product is down,,the power will turn off the output, automatic recovery after fault removal.
	Output OCP	the maximum output current exceeds +5%,turn off the output, automatic recovery after fault removal
	OTP	85 ℃ derating power, 90 ℃ shutdown; automatic recovery after the temperature returns to normal
	SCP	Before starting, if the output is short-circuited , not start ; during operating, if the output is short-circuited, the output is turned off immediately; the automatic recovery function after fault removal
	Reverse battery protection	Yes, it will not cause damage to the charger or customer products
	CAN communication protection	Automatically stop output when CAN communication fails

4.5 Communication function

	CAN communication	The charger has CAN communication function for information exchange with the battery management system

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	Baud rate	250Kbps or 500Kbps optional
	Terminating resistor	NC

4.5 Safety and Others

Safety and Others	Dielectric strength	Input-Case:DC2121V 1min Leakage current ≤ 10mA Input-Output: DC4242V 1min Leakage current ≤ 10mA Output-case: DC2121V 1min Leakage current ≤ 10mA
	Insulation resistance	Input-Case:DC1000V 1min Resistance value >20MΩ Input-Output:DC1000V 1min Resistance value >20MΩ Output-Case:DC1000V 1min Resistance value >20MΩ
	Grounding resistance	The resistance between the input protection earth and the chassis ground point is less than 100 milliohms, and the test current is 25A AC.
	EMI	Meet the requirements of GB/T 18487.3-2001 11.3.1
	EMD	Meet the requirements of GB/T 18487.3-2001 11.3.2
	Harmonic current	Meet the requirements of 6.7.1.1 of GB 17625.1-2003
	Inrush current	≤24A
	Output response time	≤5S, overshoot ≤5%
	response time of turning off	100% to 10% ≤ 50mS, 100% to 0% ≤ 200mS
	IP protection level	IP67
	Vibration	10-25Hz amplitude 1.2mm, 25-500Hz 30m/s2, 8 hours in each direction
	Noise	≤65dB (A grade)
	MTBF	150000H(Vin=220Vac,Ta=25℃，80％Load)
	Operating environment	Relative temperature 5%-95% without Frost, no condensation
	Operating temperature	-40℃ ~ 55℃
	Storage temperature	-40℃ ~ 105℃

5、Function block diagram

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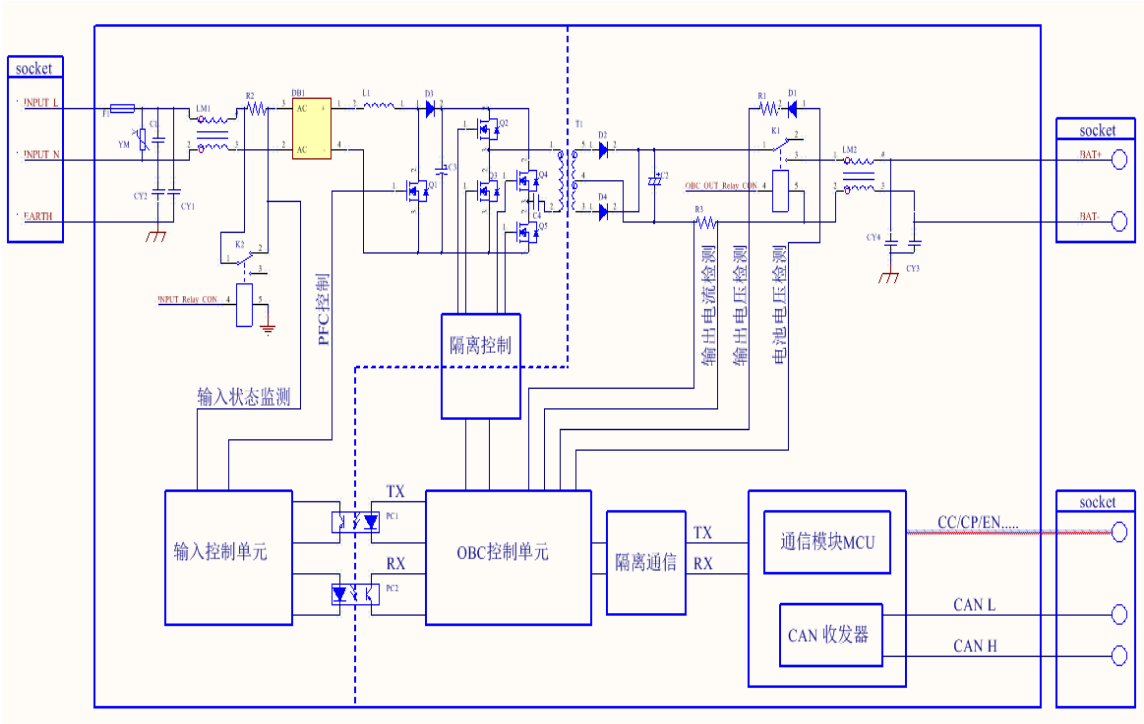
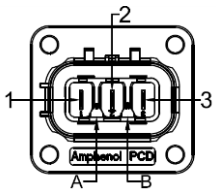
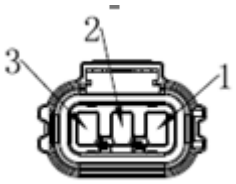


6、Electrical interface definition

6.1 AC input connector

HVSL633023A(Amphenol)



Pin	Function	Rated current	Definition	Wire cross-sectional area	Notes
1	Input AC N line	16A	零線（N）	2.5~4mm²	Docking plug specification Model:HVSL633063 
2	Input AC PE		地線 PE		
3	Input AC L line		火線（L）		
A	/	/	/	/	
B	/		/		

6.2 High voltage output connector

HVSL362022A (Amphenol)

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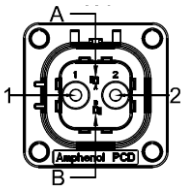
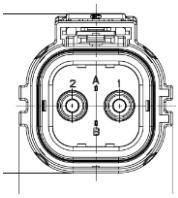
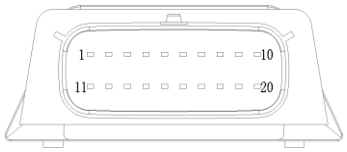
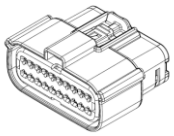


Pin	Function	Rated Current	Definition	Wire cross-sectional area	Notes
1	Positive output	40A	/	6mm²	Docking plug specification Model: HVSL362062 
2	Negative output		/		
A	/	/	/	/	
B	/		/		

6.3 Low voltage signal connector

348302001（Molex）



Pin	Function	Rated Current	signal type	Notes
10	12V5A	/	12V5A	Docking plug specification Model: 334722006 
11	CAN_H	0.1A	CAN signal high, digital signal	
12	CAN_L	0.1A	CAN signal low, digital signal	
17	GND	/	Signal ground	
Others	/	NC	Blank pin	

7、Software requirements

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7.1、CAN communication

No.	Items	Technical indicators	Notes
1	Baud rate	250 Kbit/s or 500 Kbit/s optional	/
2	CAN bus communication protocol	Comply with CAN2.0B specification	/
3	Terminating resistor	No terminating resistor	/

8、Mechanical requirements

8.1： Size requirements

Length × Width × Height ： 264.5mm × 252mm × 100mm, tolerance ± 3mm

8.2 Appearance requirements

The surface of the part should be smooth, free from defects such as delamination, rust, cracks, spots, burrs, deformation, and hand-accessible bumps. The connecting parts are complete, the parts are securely fastened, and there are no defects and damages such as rust, burrs and cracks. The connector sheath and pins should be intact and free of damage, and the components must be fastened.

8.3 Weight requirements

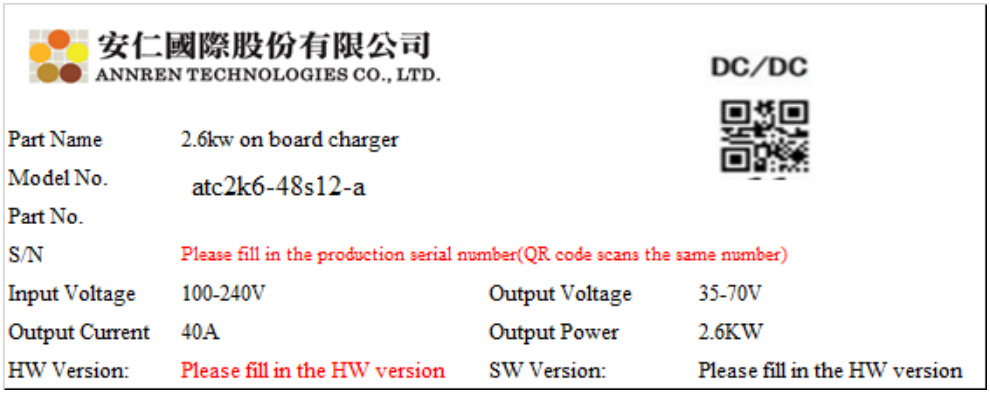
Machine weight ≤ 5kg

9、Nameplate and traceability mark

9.1 Nameplate bar code

The basic parameters of the nameplate include: model, rated voltage, rated power, production date, serial number, etc.

The following format is for reference



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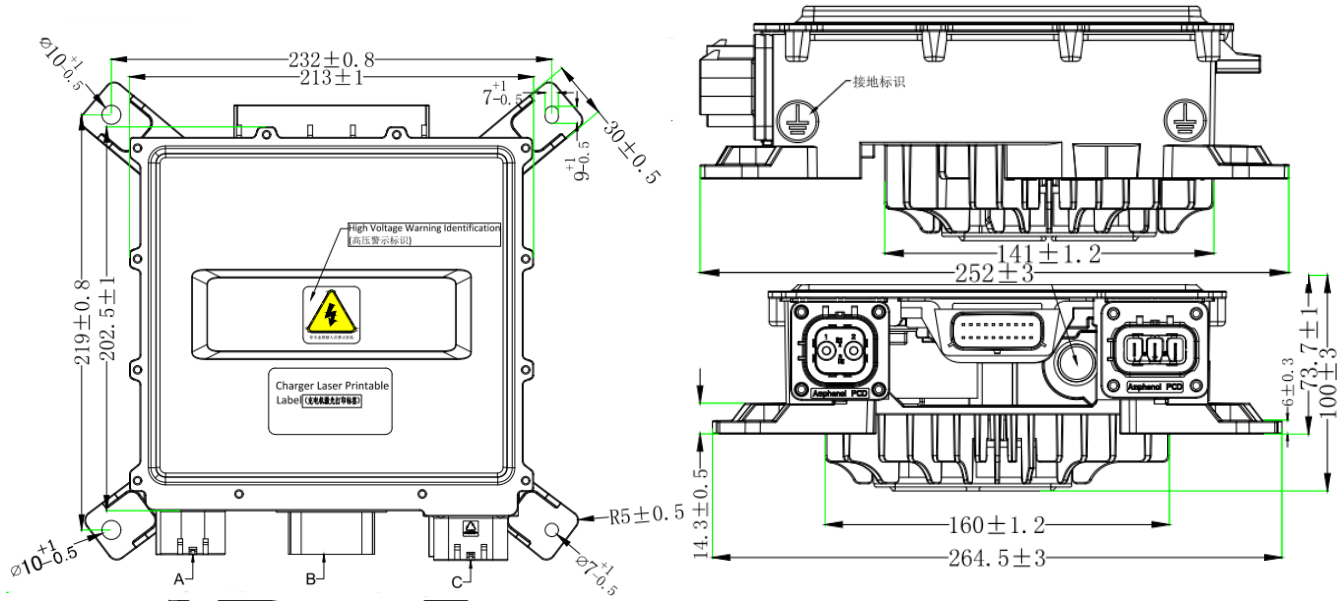
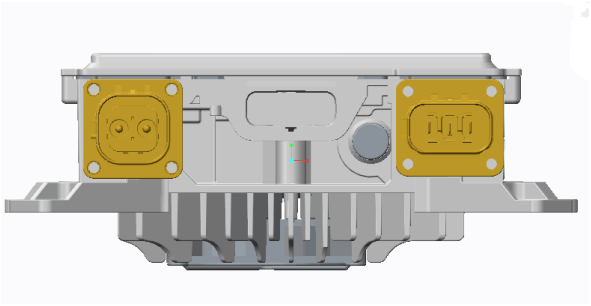
10.Installation Size

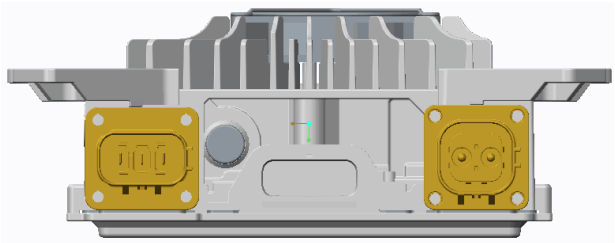


11. Installation requirements

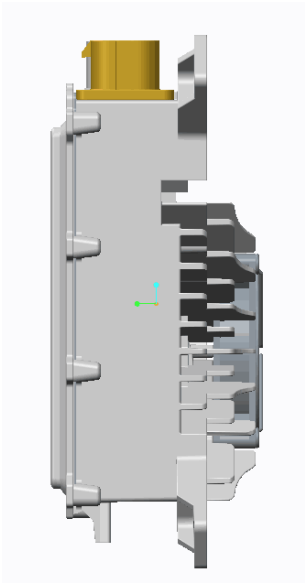


Best way to install

(At least 50mm distance off to any obstacle)



Forbidden way to install



Acceptable way to install