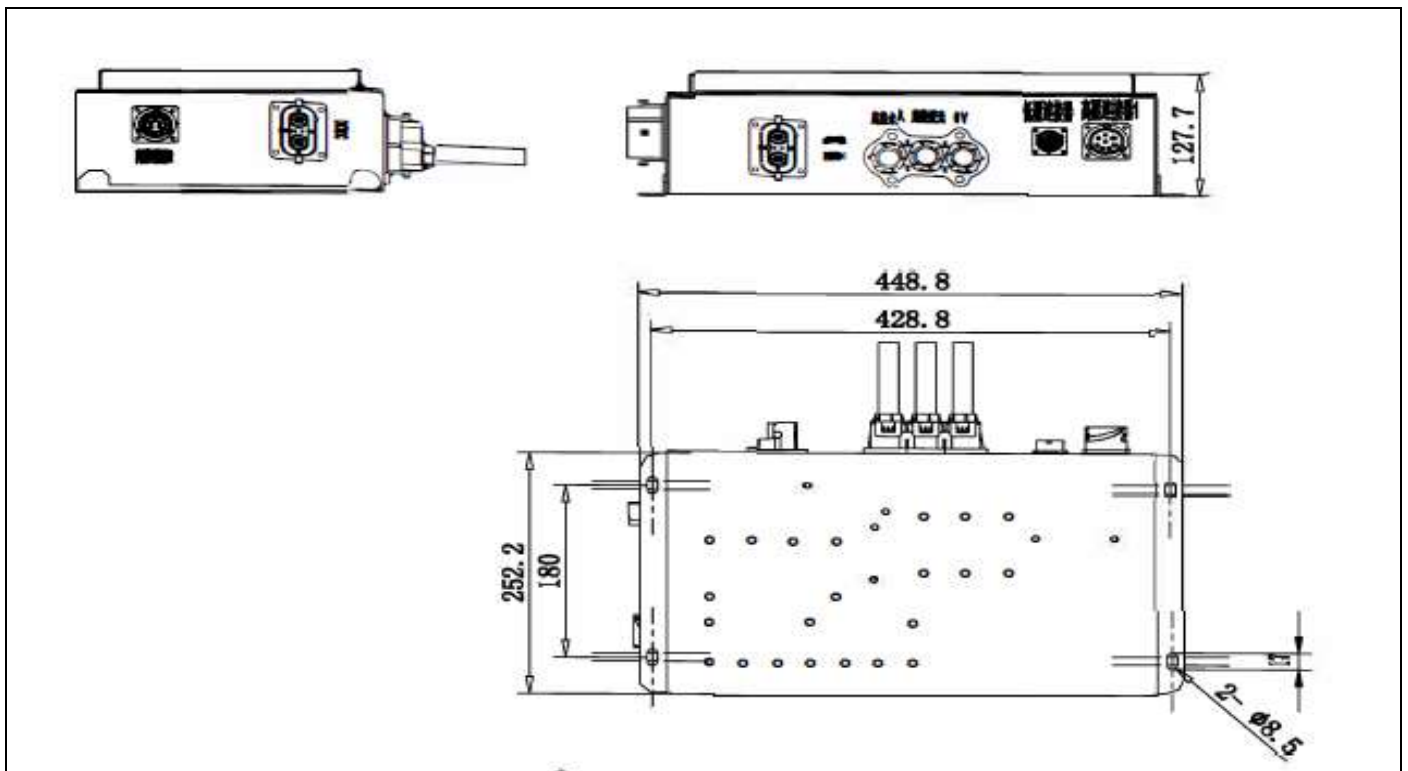




24V Fuse Box Model No.: AT24V-FB

Specification





24V Fuse Box

Model No.: AT24V-FB

I. Technical Parameters

1. Protection level: IP67
2. Operating temperature: $-40^{\circ}\text{C} \sim 70^{\circ}\text{C}$
3. Storage temperature: $-40^{\circ}\text{C} \sim 70^{\circ}\text{C}$
4. Operating voltage: 24Vdc
5. Vehicle low voltage: 24V

II. Product implementation standards

Item	Standard No.	Standard Name
1	GB/T 18487.2-2001	Electric vehicle conductive charging system Requirements for connecting electric vehicles to AC and DC power sources
2	GB/T 18487.1-2001	Electric vehicle conductive charging system General requirements
3	GB/T 18384.3-2001	Electric vehicles Safety requirements Part 3: Protection of personnel against electric shock
4	GB/T 18384.2-2001	Electric vehicles - Safety requirements Part 2: Functional safety and fault protection
5	GB/T 18384.1-2001	Electric Vehicle Safety Requirements
6	GB/T 17619-1998	Electromagnetic radiation immunity limits and measurement methods for electronic and electrical components in motor vehicles
7	GB/T 2423.17-93	Basic environmental test procedures for electrical and electronic products Test Ka: Salt spray test method
8	GB/T 2423.2-2001	Environmental testing for electric and electronic products Part 2: Test methods Test B: High temperature
9	GB/T 2423.1-2001	Environmental testing for electrical and electronic products Part 2: Test methods Test A: Low temperature
10	GB/T 4208-93	Enclosure protection degree (IP code)
11	QC/T427-2006	
12	IEC61810 : 7-2006	Relay part

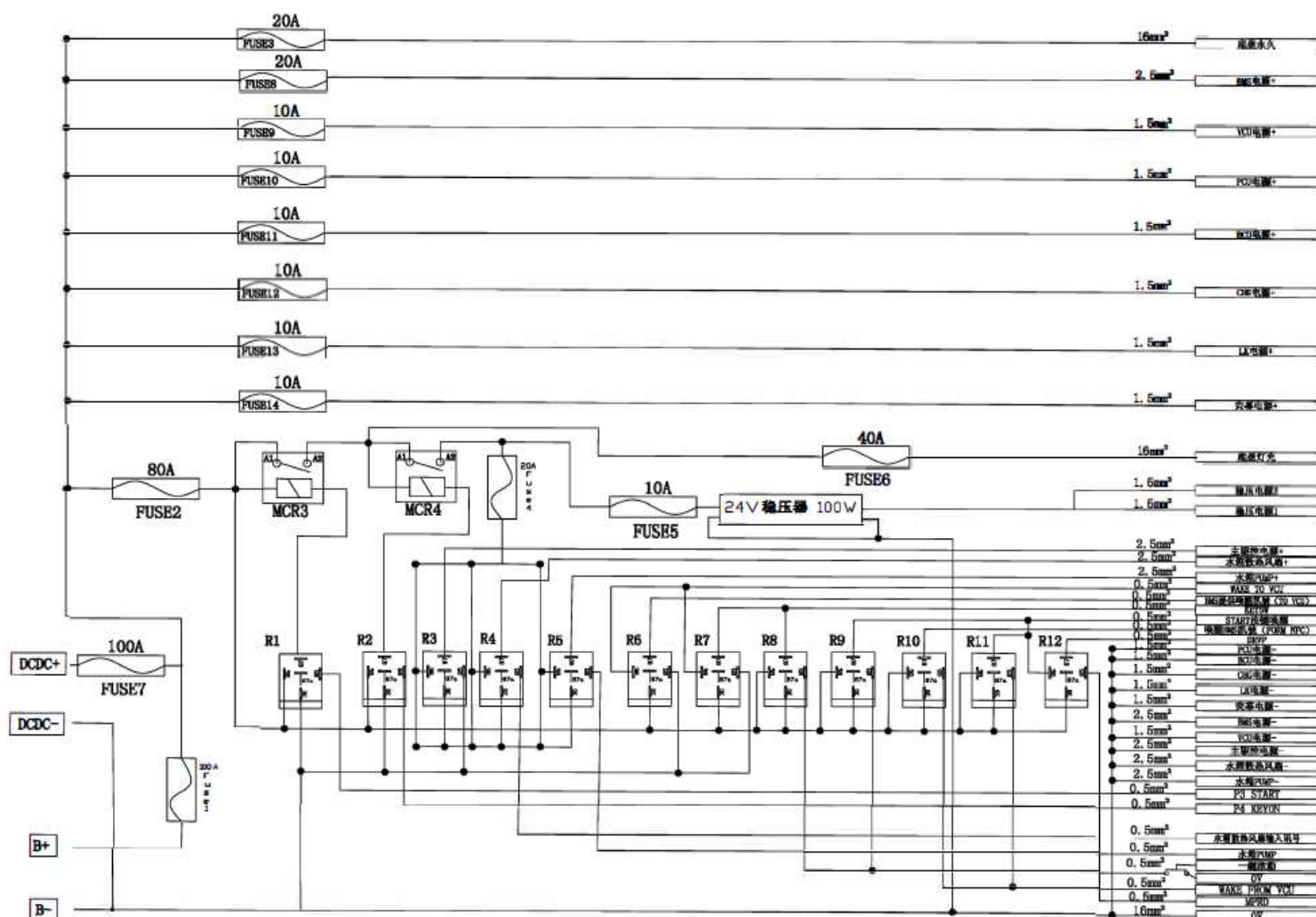
III. Appearance quality, size, material

1. Appearance material (including paint, coating quality, color, product marking, sizing, etc.)
2. The low-voltage box should have good appearance quality, and all exposed metal parts should have a reliable anti-corrosion layer.
3. Plastic parts should not have cracks or defects that seriously affect the appearance, and have flame retardant properties.
4. The paint layer on the outside of the product should be uniform, without bubbles, accumulation, or overflow, and should be firmly bonded to the surface of the covering layer.
5. Shell material: sheet metal



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IV. Assembly schematic diagram



V. Connector Model

Item	Name	definition	Socket Model	Plug model	describe	Qty
1	BAT	Battery positive Battery negative	HV7-RF060-2ALA-H13-1	HV7-PS060-2ALA-C06	2-core straight A key, over 25MM2 cable; definition 1+/2-	1
2	DCDC	DCDC	HV7-RF060-2YLA-H13-1	HV7-PS060-2YLA-C06	2-core straight Y key, over 25MM2 cable; definition 1+/2-	1
3	OUT POWER	Power supply/relay fuse box	/	HV6-3A-16	3-core straight A key, 16MM2 cable	1
4	24 CONN-1	Connector 1	ERB02R-20-7S	ERB06SB-20-7P	Metal connector 8 core, over 2.5MM2 cable	1
5	24 CONN-3	Connector 2	ERB02R-20-29S	ERB06RV-20-29P	Metal connector 17 core, crimping 1.5MM2 cable	1
6	24 CONN-2	Low voltage connector	RT0W01419P M03	RT0W61419SNHEC03	Amphenol 19-core connector, crimping 0.56MM2	1



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VI. Electronic component model

Item	Name	definition	description	Specification	Qty
1	DC contactor	MCR3	EVC100A	EVC0100-124D; DC 24V 100A	1
2	DC contactor	MCR4	EVC50A	EVC50-124D; DC 24V 50A	1
3	Relay	Low voltage relay	Low Voltage Control Relay	JQX-27FA/024/1Z7KR1-30/40A 24 VDC	12
4	Voltage Regulator	Regulator	24V Regulator 100W	/	1
5	Fuse	FUSE1	Yourong, AET-100EV	Yourong, AET-100EV	1
6	Fuse		Yourong, AET-80EV	Yourong, AET-80EV	1
7	Fuse	FUSE3-4,8	Yourong, AET-20EV	Yourong, AET-20EV	3
8	Fuse	FUSE5	Yourong, AET-10EV	Yourong, AET-10EV	1
9	Fuse	FUSE6	Yourong, AET-40EV	Yourong, AET-40EV	1
10	Fuse	FUSE8-14	Yourong, AET-10EV	Yourong, AET-10EV	6
11	Fuse	FUSE7	Yourong, AET 100EV	Yourong, AET 100EV	1

VII. Experimental method

1. Appearance inspection

Under good light conditions, visually inspect the appearance of the sample. After the test, cracks, defects and other defects are not allowed; the color and gloss are uniform, and there is no obvious shrinkage and ejector marks.

2. Mechanical dimensions

Use special tools to detect the mechanical dimensions of the product. The mechanical dimensions of the product should meet the requirements of the product drawings.

3. Insulation resistance test

When the ambient temperature is $23^{\circ}\text{C} \pm 2^{\circ}\text{C}$ and the relative humidity is 80%~90%, use a 1000V megohmmeter (or other instruments with the same function and accuracy level) to measure the low-voltage box.

Test standard: The insulation resistance between each independent circuit and the ground (metal housing) and between each circuit without electrical connection is not less than $50\text{M}\Omega$

4. Withstand voltage test

When the low-voltage box is not working, at an ambient temperature of $23^{\circ}\text{C} \pm 2^{\circ}\text{C}$ and a relative humidity of 80%~90%, use a withstand voltage tester with a range of 2121VAC (or rated voltage +1500V) to measure the leakage current of the wiring terminal to the ground (housing) and the circuits without electrical connection to each other.

It is required that the leakage current between each connector of the high-voltage distribution box and between each connector and the housing is $\leq 5\text{mA}$ when 2000VAC is used for 1min.



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5. Protection level

According to the test method in GB4208-2008, the protection level reaches IP67.

6. High temperature storage test

Test conditions: 85°C, 72 h.

After the test, the relay is operated 50 times, and the withstand voltage, insulation, and on-resistance are measured.

Test standard: All functions of the product in the test meet the design requirements.

Cracks, defects, etc. are not allowed; there should be no obvious color change on the surface.

7. Low temperature storage experiment

Test conditions: -40°C, 72 h.

After the test, the relay is operated 50 times, and the withstand voltage, insulation, and on-resistance are measured.

Test standard: All functions of the product in the test meet the design requirements.

Cracks, defects, etc. are not allowed; there should be no obvious color change on the surface.

8. Temperature shock test

A total of 50 cycles of cyclic tests are required.

1) Keep at -40°C for 30min;

2) Increase from -40°C to 85°C, the conversion time is <3min;

3) When the temperature reaches 85°C, keep it for 30min;

4) Lower the temperature from 85°C to -40°C, the conversion time is <3min;

Test standard: All functions of the product under test meet the design requirements.

Defects such as cracks are not allowed; there should be no obvious color change on the surface.

9. Salt spray test

According to the test method specified in QC_T 413-2002, the test time is 48 hours

Test standard: All functions of the product under test meet the design requirements, and all functions can work normally.

Defects such as cracks and defects are not allowed; there should be no obvious color change on the surface.

10. Vibration test

Fixed frequency vibration: Fix the high-voltage distribution box on the vibration table, the vibration frequency is 50--500 Hz,

the acceleration is 3g (at 5 Hz~50 Hz, the displacement amplitude is 1.3 mm).

Test time: 4 hours in the up and down direction, 2 hours in the left and right direction,



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and 2 hours in the front and back direction.

After the test, the low-voltage box will not have any mechanical damage, deformation, or loosening of the fastening parts, and it can work normally after power is turned on.