

Ultra capacitor system for city bus

1 Summary

Characteristics

- System S585V36-K7 and system S720V40-K7 passed compulsory inspection required by National Ministry directory
- System S720V40-K7 is certified by ECE R100 and ECE R10
- Working temperature window -25 ~ 55°C
- Designed with multiple protection case filled with nitrogen
- Fast charge of 6 ~ 8 minutes to the state of full charge
- CMS can monitor the voltage, temperature, etc of each capacitor and automatically balance the voltage difference

Applications

- City bus
- Tunnel locomotive
- Mining locomotive
- Port truck
- Marine power supply
- Emergency UPS
- Smart power grids
- Ground energy storage station
- Other high power and high energy applications

2 Dimension



3 Product Specification

Part Number	S585V36-K7	
Nominal Capacitance(F)	1111 (According to corporate standard)	889 (According to QC/T 741-2014)
Operating Voltage Window(V)	400 ~ 585	374.4 ~ 590.4 (According to GB/T 31467.1)
Surge Voltage(V)	605	
Stored Energy(kWh)	32±5% (400 ~ 585V)	35±5% (According to GB/T 31467.1)
Standard Charge Current(A)	400	
Standard Discharge Current(A)	≤400	
Maximum Charge/Discharge Current(<20s)(A)	800	
Time for Charging(min)	6 ~ 8	
Operating Temperature(°C)	-25 ~ +55	
Storage Temperature(°C)	-30 ~ +65	
Protection Level	IP67	
Electric Property	Overvoltage, overcurrent, overheat, overload, short circuit, DC leakage protection, etc	
Capacitor Management System	Automatic balance, voltage monitor, temperature monitor, DC leakage monitor, etc	
Cooling Mode	Air cooling	
Communication Interface	CAN	
Size(mm)	1370×1000×895	
Weight(kg)	1000	

Part Number	S720V40-K7	
Nominal Capacitance(F)	778 (According to Corporate standard)	622 (According to QC/T 741-2014)
Operating Voltage Window(V)	504 ~ 720	468 ~ 738 (According to GB/T 31467.1)
Surge Voltage(V)	756	
Stored Energy(kWh)	32±5% (504 ~ 720V)	40±5% (According to GB/T 31467.1)
Standard Charge Current(A)	450	
Standard Discharge Current(A)	≤330	
Maximum Charge/Discharge Current(<20s)(A)	660	
Time for Charging(min)	6 ~ 8	
Operating Temperature(°C)	-25 ~ +55	
Storage Temperature(°C)	-30 ~ +65	
IP Grade	IP67	
Electric Property	Overvoltage, overcurrent, overheat, overload, short circuit, DC leakage protection, etc	
Capacitor Management System	Auto balance, voltage monitor, temperature monitor, DC leakage monitor, etc	
Cooling Mode	Air cooling	
Communication Interface	CAN	
Size(mm)	1800×1041×750	
Weight(kg)	1480	

4 Test method

Test conditions

- Ambient temperature: 25±5°C
- Relative humidity: 25% ~ 85%
- Ambient pressure: 86 ~ 106kPa

Standards and Conformity

- Specific safety specifications of electric buses
- GB 4208-2008 Degrees of protection provided by enclosure (IP code)
- GB/T 31467.1-2015 Lithium-ion traction battery pack and system for electric vehicles----Test specification for high power applications
- GB/T 31467.3-2015 Lithium-ion traction battery pack and system for electric vehicles----Safety requirements and test methods
- QC/T 741-2014 Ultra-capacitor for electric vehicles
- AW/CJ-1-2017 Factory inspection standard of ultra capacitor system for city bus

5 Announcements

Operating requirements

- System should be placed vertically upward during operation
- As a high voltage device, the system shall not be used, disassembled or maintained by non -professionals.
- When connecting the system to external circuit, the circuit switch must be cut off first, otherwise there would be danger of high-voltage shock
- Before operating the system, connect communication cables to vehicle system correctly, and make sure the positive and negative polarity of power supply and load
- Short-circuit and reverse connection of the system is strictly prohibited, cut off circuit and take safety measures once such cases happen
- Check each parameter on the human-computer interface(HMI) to ensure the voltage of each cell is between 2.80 ~ 4.05V and the maximum voltage difference shouldn't be larger than 200mV
- The system case is filled with nitrogen to positive pressure, when the pressure in the case is < 0.01bar, nitrogen should be refilled until the pressure goes to 0.3 ~ 0.4bar
- Please stop charging when peculiar smell or abnormal noise is found during charging the system
- Abandoning used capacitor is strictly prohibited, please discharge capacitor to 0V before recycling

Storage and transportation requirements

- Ambient temperature: -30 ~ 65°C
- Relative humidity: 0 ~ 95%
- Ambient pressure: 86 ~ 106kPa
- System should be placed vertically upward during storage and transportation
- Keep power interfaces protected in order to prevent collision, which may cause short circuit during the process of storage and transportation
- System must be charged to rated voltage before long term storage and transportation. Check cell voltage difference every 45 days, when cell voltage difference is < 200mV and > 50mV, balance system should be activated until the cell voltage difference drops to ≤40mV, when cell voltage difference is > 200mV, child node or capacitor should be checked, replace the bad child node or cell if necessary
- When system is kept unused for longer than 1 year, it should be tested by Aowei before using.
- Avoid contacting corrosive materials, keep away heat sources and fire sources
- Prevent violent vibration, collision or crush during the process of transportation
- Prevent exposing in the sun and rain, and keep dry and ventilated during transportation
- The system can be transported by cars, trains, ships, etc

6 Product liability

- Aowei shall not be held responsible for the accident which caused by the violation of this specification
- Improvements of the product or upgrading of related technologies may change without further notice
- Please deal with the used ultra capacitor according to local environmental protection regulations. The used capacitor shall be treated as general industrial waste. Considering the recycling classification and resource reutilization of trashed or used chemical power units, used capacitor should be submitted to the company with professional qualifications. For the matters of disposal and recycle, GB/T 33598-2017 Recycling of traction battery used in electric vehicle-Dismantling specification can be the reference. Aowei could provide part of technical support depending on mutual agreements.
- To learn about the new products, welcome to contact us.