



SuZhou ALQ Electronic Technology CO.,LTD.

The cover of the product manual features a close-up, high-contrast photograph of mechanical components, including a central threaded rod and surrounding gears or pulleys. The text is overlaid on this image.

产品手册

Product Manual

直流接触器 DC Contactor

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For more product and industry information, please visit our company website.

Google www.alq-dccontactor.com

www.zgalq.com



产品优势显著 The Product Boasts Remarkable Advantages:

体积小、寿命长、温升高、抗粘连、安装便捷、安全可靠，等。

Compact size, long service life, low temperature rise, anti-welding, easy installation, safety and reliability, etc.



个性化的产品 Customized Products:

我们依据不同行业的需求与痛点提供个性化的产品。

We provide customized products tailored to the specific needs and pain points of different industries.



产品认证齐全 Full Certifications Obtained:

我们的产品面向全球销售，已通过 CCC, UL, CE, TÜV 认证。

Our products are sold globally and have passed CCC, UL, CE, and TÜV certifications.



产品系列全面 Complete Product Series:

产品额定电流范围 10 A ~ 1000 A，最大切换电压范围 12 Vdc ~ 1500 Vdc。

The rated current range of products is 10 A ~ 1000 A, with a maximum switching voltage range of 12 Vdc ~ 1500 Vdc.



产品应用广泛 Widely Used in Various Applications:

产品主要应用于以动力电池为核心的电动化产业中，主要包括：储能侧、充电侧、动力侧、电池生产侧等。“直流接触器/继电器”作为直流电路的智能控制开关是电动化产业链中不可或缺的关键元器件。

Our products are mainly applied in the electrification industry centered on power batteries, covering energy storage, charging, power transmission, and battery production sectors. As intelligent control switches for DC circuits, DC contactors/relays serve as indispensable core components in the electrification industry chain.



EVQ Series

环氧封装直流接触器 Epoxy-Encapsulated DC Contactor

环氧封装直流接触器专为高负载电压、高防护等级及高可靠性设计，是您的工业车辆、直流充电桩、储能系统（ESS）、高压变频器、电池测试设备、不间断电源（UPS）等高压直流系统的理想之选。

The epoxy-encapsulated DC contactor is designed for high load voltage, high protection level, and high reliability, making it the best choice for your industrial vehicles, DC charging pile, energy storage system, high-voltage frequency converter, battery testing equipment, uninterruptible power supply, and other high-voltage DC systems.



EVC Series

密封直流接触器 Sealed DC Contactor

EVC 系列直流接触器专为工业车辆、高压变频器及 PCS（功率转换系统）设计。该系列直流接触器具备卓越的容性负载浪涌耐受能力，可有效防止主触点发生熔焊。

The EVC series DC contactors are specifically designed for industrial vehicles, high-voltage frequency converters, and PCS (Power Conversion Systems). This series of DC contactors features excellent resistance to capacitive load surges, ensuring that the power contacts are less prone to welding.

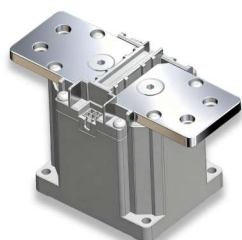


EVD Series

空气式直流接触器 Air-Type DC Contactor

EVD 系列直流接触器专为低电压直流控制系列设计。该系列直流接触器具备卓越的容性负载浪涌耐受能力，可有效防止主触点发生熔焊。

The EVD Series DC Contactors are specifically designed for low-voltage DC control systems. This series of DC contactors features excellent resistance to capacitive load surges, effectively preventing the main contacts from welding.



EVH Series

陶瓷封装直流接触器 Ceramic-Encapsulated DC Contactor

EVH 系列直流接触器在高电压负载下进行带载切换具有卓越的表现。

The EVH series DC contactors demonstrate outstanding performance in on-load switching under high-voltage loads.



工业车辆 Industrial Vehicles

工业车辆行业典型应用：电动叉车、电动托盘车、电动高空作业平台、智能物流系统、自动导引车（AGV）、冷链物流设备、工业机器人、电动工具及电动高尔夫球车等。

Typical applications in the industrial vehicle industry: electric forklifts, electric pallet trucks, electric aerial work platforms, intelligent logistics systems, automated guided vehicles (AGV), cold chain logistics equipment, industrial robots, electric tools, electric golf carts, etc.



直流充电设备 DC Charging Equipment

直流充电设备行业典型应用：充电桩、小直流充电桩、单体式直流充电桩、分体式直流充电桩（群充）、超级快充充电桩、重卡直流一体式充电桩等。

Typical applications in the DC charging equipment industry: charger, small DC charging pile, monoblock DC charging pile, split-type DC charging pile (group charging), ultra-fast DC charging pile, integrated DC charging pile for heavy-duty trucks, etc.



储能系统（ESS） Energy Storage System

储能系统典型应用：大型储能（发电侧、电网侧）、中型储能（工商业）、小型储能（户用）等。

Typical applications of energy storage systems: large-scale energy storage (generation-side, grid-side), medium-scale energy storage (industrial & commercial), small-scale energy storage (residential), etc.



变频设备 Frequency Conversion Equipment

变频设备典型应用：高压变频器、储能变流器（PCS）、工业整流电源等。

Typical applications of frequency conversion equipment: high-voltage frequency converters, power conversion system (PCS), and industrial rectifier power supplies, etc.



工业设备 Industrial Equipment



不间断电源（UPS） Uninterruptible Power Supply



EVQ Series

环氧封装直流接触器 Epoxy-Encapsulated DC Contactor

型号 Type	外形 Appearance	尺寸 (长×宽×高) Dimensions(L×W×H)	额定电流(可选) Rated Current (Optional)	最大切换电压 Max. Switching Voltage	主触点配置 Power Contact Arrangement	辅助触点配置(可选) Auxiliary Contact Arrangement (Optional)	额定线圈电压(可选) Coil Voltage Rating (Optional)	额定线圈功率(可选) Rated Coil Power (Options)	线圈特性 Coil Characteristic
EVQ1C		51.3×37.2× 48.0 mm	10 A 30 A 50 A	1000 Vdc	一组常开 SPST-NO-DM	无 None	12 Vdc 24 Vdc 48 Vdc	3.2 W 3.5 W 3.7 W	单线圈 Single coil
EVQ1D		51.5×36× 48.9 mm	10 A 30 A 50 A	1000 Vdc	一组常开 SPST-NO-DM	无 None	12 Vdc 24 Vdc 48 Vdc	3.2 W 3.5 W 3.7 W	单线圈 Single coil
EVQ2C		53.8×40.2× 59.4 mm	100 A 135 A	1000 Vdc	一组常开 SPST-NO-DM	一组常开/ 一组常闭/无 SPST-NO / SPST-NC / None	12 Vdc 24 Vdc 48 Vdc	5.5 W 6.0 W 5.9 W	单线圈 Single coil
EVQ3G		69.5×53.6× 65.8 mm	150 A	1500 Vdc	一组常开 SPST-NO-DM	一组常开/ 一组常闭/无 SPST-NO / SPST-NC / None	12 Vdc 24 Vdc 48 Vdc	5.8 W 4.8 W 5.6 W	单线圈 Single coil
EVQ4G		80×54.5× 74.3 mm	150 A	1500 Vdc	一组常开 SPST-NO-DM	一组常开/ 一组常闭/无 SPST-NO / SPST-NC / None	12 Vdc 24 Vdc 48 Vdc	5.8 W 4.8 W 5.6 W	单线圈 Single coil
EVQ5K		80.0×62.9× 72.4 mm	200 A 250 A 300 A 350 A	1000 Vdc	一组常开 SPST-NO-DM	一组常开/ 一组常闭/无 SPST-NO / SPST-NC / None	12 Vdc 24 Vdc 48 Vdc	6.0 W 5.7 W 6.5 W	单线圈 Single coil
EVQ5KH		80.0×62.9× 66.8 mm	250 A 300 A 400 A	500 Vdc	一组常开 SPST-NO-DM	一组常开/ 一组常闭/无 SPST-NO / SPST-NC / None	12 Vdc 24 Vdc 48 Vdc	6.0 W 5.7 W 6.5 W	单线圈 Single coil
EVQ7A		88.0×72.7× 103.0 mm	400 A 500 A 600 A	1000 Vdc	一组常开 SPST-NO-DM	一组常开/ 一组常闭/无 SPST-NO / SPST-NC / None	12 Vdc	6.5 W	单线圈 Single coil



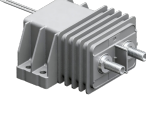
EVQ Series

环氧封装直流接触器 Epoxy-Encapsulated DC Contactor

型号 Type	外形 Appearance	尺寸 (长×宽×高) Dimensions(L×W×H)	额定电流(可选) Rated Current (Optional)	最大切换电压 Max. Switching Voltage	主触点配置 Power Contact Arrangement	辅助触点配置(可选) Auxiliary Contact Arrangement (Optional)	额定线圈电压(可选) Coil Voltage Rating (Optional)	额定线圈功率(可选) Rated Coil Power (Options)	线圈特性 Coil Characteristic
EVQ15		82.0×76.4× 114.9 mm	400 A 500 A 600 A	1500 Vdc	一组常开 SPST-NO-DM	一组常开/ 一组常闭/无 SPST-NO / SPST-NC / None	12 Vdc 24 Vdc	6.0 W 6.0 W	双线圈 Dual coil
EVQ9A		162.0×147.0 ×114.5 mm	800 A 1000 A	1000 Vdc	二组常开 DPST-NO-DM	一组常开(2个)/ 一组常闭(2个)/无 SPST-NO (2)/ SPST-NC (2)/ None	12 - 24 Vdc	5.0 W	单线圈+PWM Single coil + PWM

EVC Series

密封直流接触器 Sealed DC Contactor

型号 Type	外形 Appearance	尺寸 (长×宽×高) Dimensions(L×W×H)	额定电流(可选) Rated Current (Optional)	最大切换电压 Max. Switching Voltage	主触点配置 Power Contact Arrangement	辅助触点配置(可选) Auxiliary Contact Arrangement (Optional)	额定线圈电压(可选) Coil Voltage Rating (Optional)	额定线圈功率(可选) Rated Coil Power (Options)	线圈特性 Coil Characteristic
EVC2A		37.0×30.0× 81.8 mm	80 A 100 A 125 A	500 Vdc	一组常开 SPST-NO-DM	无 None	12 Vdc 24 Vdc 48 Vdc	8.0W 8.0W 8.0W	单线圈 Single coil
EVC5A		56.0×45.0× 93.0 mm	150 A 200 A 250 A	500 Vdc	一组常开 SPST-NO-DM	一组常开/ 一组常闭/无 SPST-NO / SPST-NC / None	12 Vdc 24 Vdc 48 Vdc	10.0W 10.0W 10.0W	单线圈 Single coil
EVC7A		74.0×60.0× 127.5 mm	400 A 500 A 600 A	500 Vdc	一组常开 SPST-NO-DM	一组常开/ 一组常闭/无 SPST-NO / SPST-NC / None	12 Vdc 24 Vdc 48 Vdc	9.0W 9.0W 9.0W	单线圈 Single coil
EVC7AX		112.0×66.1× 130.5 mm	400 A 500 A 600 A	500 Vdc	一组常开 SPST-NO-DM	一组常开/ 一组常闭/无 SPST-NO / SPST-NC / None	12 Vdc 24 Vdc 48 Vdc	9.0W 9.0W 9.0W	单线圈 Single coil



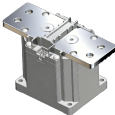
EVD Series

空气式直流接触器 Air-Type DC Contactor

型号 Type	外形 Appearance	尺寸 (长×宽×高) Dimensions (L×W×H)	额定电流 (可选) Rated Current (Optional)	最大切换电压 Max. Switching Voltage	主触点配置 Power Contact Arrangement	辅助触点配置 (可选) Auxiliary Contact Arrangement (Optional)	额定线圈电压 (可选) Coil Voltage Rating (Optional)	额定线圈功率 (可选) Rated Coil Power (Options)	线圈特性 Coil Characteristic
EVD1A		56.0× 30.0× 41.3 mm	10 A 20 A 30 A	500 Vdc	一组常开 SPST-NO-DM	无 None	12 Vdc 24 Vdc	3.0 W 3.0 W	单线圈 Single coil
EVD2A		79.0× 40.0× 68.5 mm	100 A 150 A 200 A 250 A	200 Vdc	一组常开 SPST-NO-DM	无 None	12 Vdc 24 Vdc 48 Vdc	6.0 W 6.0 W 6.0 W	单线圈 Single coil

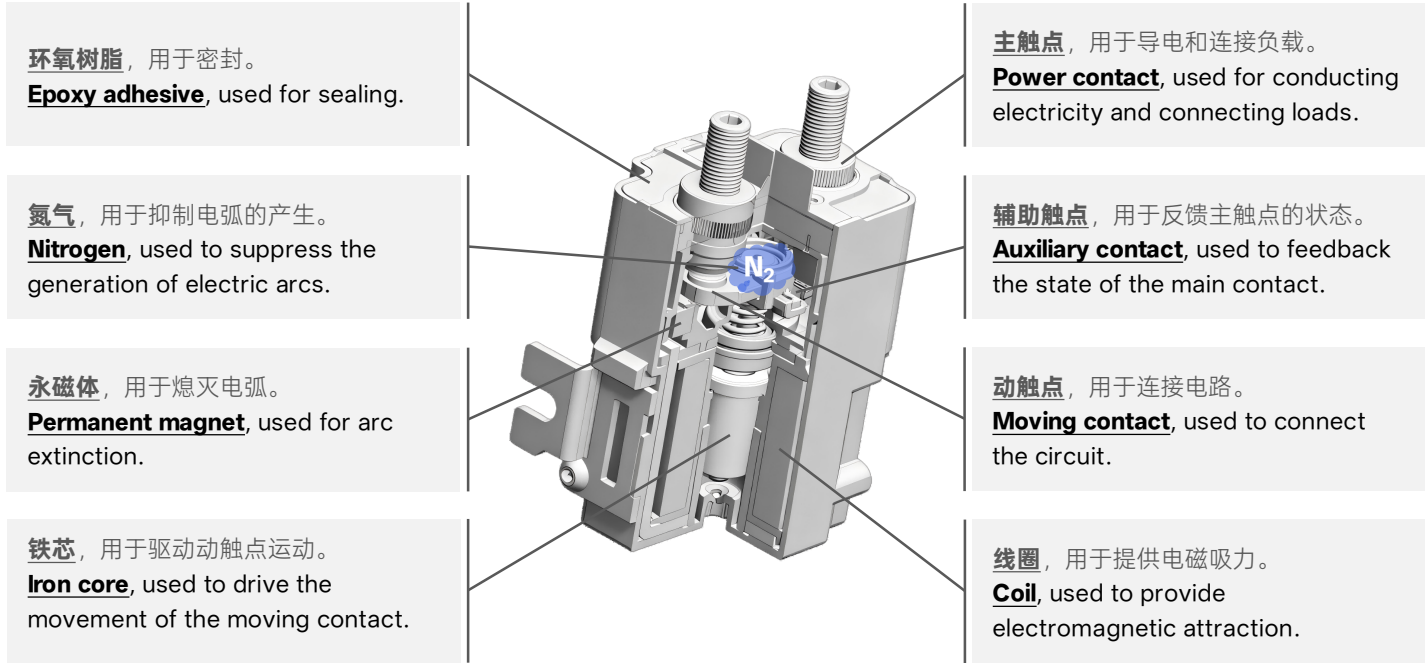
EVH Series

陶瓷封装直流接触器 Ceramic-Encapsulated DC Contactor

型号 Type	外形 Appearance	尺寸 (长×宽×高) Dimensions (L×W×H)	额定电流 (可选) Rated Current (Optional)	最大切换电压 Max. Switching Voltage	主触点配置 Power Contact Arrangement	辅助触点配置 (可选) Auxiliary Contact Arrangement (Optional)	额定线圈电压 (可选) Coil Voltage Rating (Optional)	额定线圈功率 (可选) Rated Coil Power (Options)	线圈特性 Coil Characteristic
EVH9A		168× 86× 104.4 mm	800 A 1000 A	1500 Vdc	二组常开 DPST-NO-DM	一组常开/ 一组常闭/无 SPST-NO/ SPST-NC / None	12 - 24 Vdc	4.0 W	单线圈+PWM Single coil + PWM



直流接触器内部结构 The Internal Structure of DC Contactor



直流接触器的功能 Functions of DC Contactor

直流接触器是专为直流电路设计的电气控制元件，核心功能是实现直流电路的可靠通断与安全控制，广泛应用于电动汽车、充电桩、工业车辆、电动工具、智能物流、机器人、光伏储能、工业设备等领域。其具体功能可分为核心控制功能、安全保护功能及辅助拓展功能三大类，具体如下：

一、核心控制功能：实现直流电路的通断与调节。

这是直流接触器最基础的功能，通过电磁驱动原理控制触点动作，完成对高电压、大电流直流电路的控制。

- 1、**电路通断控制**：在直流供电系统中，作为“电子开关”接通或切断主电路。
- 2、**负载切换控制**：针对多负载的直流系统，实现不同负载的切换。

3、**远程与自动控制**：通过接收低压控制信号（如 PLC、单片机、车载控制器的指令）实现远程操作，无需人工直接接触高压直流电路。

二、安全保护功能：保障电路与设备安全

直流电路存在电弧难熄灭、电流惯性大的特点，直流接触器通过特殊结构设计，解决直流电路通断时的安全隐患，保护电路、负载及人员安全。



- 1、**灭弧保护**：直流电流无自然过零点，触点断开时易产生持久、高温的电弧，可能烧毁触点或引发绝缘损坏。直流接触器内置灭弧系统（如灭弧罩、磁吹灭弧装置、惰性气体灭弧室、真空灭弧室等），能快速熄灭电弧，防止电弧对触点和周边元件的损伤，避免电路短路或火灾风险。
- 2、**过载与短路防护配合**：虽然直流接触器本身不直接检测过载或短路，但可与过载保护器（如直流断路器、热继电器）联动，实现故障保护。当电路出现过载或短路时，保护器触发信号，使直流接触器迅速断开主触点，切断故障回路，保护电机、电池、逆变器等核心设备免受过载损坏。
- 3、**防误操作与隔离保护**：常开直流接触器具备“零电压释放”功能——当控制电路断电时，接触器触点自动断开，避免因控制信号丢失导致电路误接通；同时，接触器断开后，主触点间的绝缘距离可实现电路的电气隔离，防止检修时人员触电。

三、辅助拓展功能：适配复杂系统需求

除基础控制与保护外，直流接触器还可通过结构设计或搭配附件，满足特定场景的功能需求：

- 1、**辅助触点信号反馈**：除主触点外，多数直流接触器配备 1-4 组辅助触点（常开/常闭），可将接触器的“吸合/断开”状态转化为电信号，反馈给控制系统（如仪表盘、PLC），实现状态监控或逻辑联动（例如，只有接触器吸合信号确认后，电机才能启动）。
- 2、**抗振动与环境适应**：针对车载、轨道交通等振动剧烈的场景，直流接触器采用螺管式磁路结构，确保在高频振动下触点不误动作；针对恶劣工作环境（如潮湿、粉尘、高温、低温、高海拔），直流接触器采用密封结构且由惰性气体保护，确保在恶劣工作环境下可靠运行。
- 3、**适应不同负载形式**：不同形式的负载会产生相应的冲击电流（如电机负载的冲击电流为 5-20 倍，电容器负载的冲击电流为 20-40 倍），直流接触器采用不同的触点材料和结构设计，确保能承受不同负载的冲击电流。

DC contactor is an electrical control component specifically designed for DC circuits. Its core function is to achieve reliable on-off control and safe operation of DC circuits, and it is widely used in fields such as electric vehicles, charging piles, industrial vehicles, power tools, intelligent logistics, robots, photovoltaic energy storage, and industrial equipment. Its specific functions can be divided into three categories: core control functions, safety protection functions, and auxiliary expansion functions, as detailed below:

I. Core Control Functions: Enabling On-off and Regulation of DC Circuits

This is the most basic function of a DC contactor. It controls the action of contacts based on the electromagnetic drive principle to achieve the control of high-voltage and high-current DC circuits.

- 1. **Circuit On-off Control:** In DC power supply systems, it acts as an "electronic switch" to connect or disconnect the main circuit.
- 2. **Load Switching Control:** For DC systems with multiple loads, it realizes the switching between different loads.
- 3. **Remote and Automatic Control:** It receives low-voltage control signals (such as commands from PLCs, microcontrollers, and on-board controllers) to achieve remote operation, eliminating the need for manual direct contact with high-voltage DC circuits.



II. Safety Protection Functions: Safeguarding Circuits and Equipment

DC circuits are characterized by difficult arc extinction and high current inertia. Through a special structural design, DC contactors address safety hazards during the on-off process of DC circuits and protect the safety of circuits, loads, and personnel.

1. Arc Extinction Protection: DC current has no natural zero-crossing point, so persistent and high-temperature arcs are prone to occur when contacts are disconnected, which may burn the contacts or cause insulation damage. DC contactors are equipped with a built-in arc extinction system (such as an arc chute, magnetic blow arc device, inert gas arc-extinguishing chamber, vacuum arc-extinguishing chamber, etc.), which can quickly extinguish arcs, prevent damage to contacts and surrounding components caused by arcs, and avoid the risk of circuit short circuits or fires.

2. Coordination with Overload and Short-Circuit Protection: Although DC contactors do not directly detect overloads or short circuits, they can be linked with overload protectors (such as DC circuit breakers and thermal relays) to achieve fault protection. When an overload or short circuit occurs in the circuit, the protector triggers a signal, enabling the DC contactor to quickly disconnect the main contacts and cut off the faulty circuit, thereby protecting core equipment such as motors, batteries, and inverters from overload damage.

3. Misoperation Prevention and Isolation Protection: Normally open DC contactors have a "zero-voltage release" function—when the control circuit is de-energized, the contactor contacts automatically disconnect, preventing incorrect circuit connection caused by the loss of control signals. At the same time, after the contactor is disconnected, the insulation distance between the main contacts can achieve electrical isolation of the circuit, preventing electric shock to personnel during maintenance.

III. Auxiliary Expansion Functions: Adapting to the Needs of Complex Systems

In addition to basic control and protection, DC contactors can also meet the functional requirements of specific scenarios through structural design or matching with accessories:

1. Auxiliary Contact Signal Feedback: In addition to the main contacts, most DC contactors are equipped with 1-4 sets of auxiliary contacts (normally open/normally closed), which can convert the "closed/disconnected" state of the contactor into electrical signals and feed them back to the control system (such as instrument panels and PLCs). This enables status monitoring or logical linkage (for example, the motor can only start after the contactor closure signal is confirmed).

2. Vibration Resistance and Environmental Adaptability: For scenarios with severe vibration such as vehicle-mounted and rail transit applications, DC contactors adopt a solenoid-type magnetic circuit structure to ensure that contacts do not operate incorrectly under high-frequency vibration. For harsh working environments (such as humidity, dust, high temperature, low temperature, and high altitude), DC contactors use a sealed structure protected by inert gas to ensure reliable operation in harsh working conditions.

3. Adaptation to Different Load Types: Different types of loads generate corresponding inrush currents (for example, the inrush current of motor loads is 5-20 times the rated current, and that of capacitor loads is 20-40 times the rated current). DC contactors adopt different contact materials and structural designs to withstand the inrush currents of different loads.



致力于：为全球提供更安全可靠的直流开关电器
Committed to providing safer and more reliable DC switching devices for the global market.

我们的服务宗旨
Our service tenet



快速
Fast

专业
Professional

规范
Standardized

说明 NOTE

- 本产品手册列举了安来强科技的主要产品，用户可根据需要进行选择，如本产品手册没有适合的产品，请及时联系安来强以获得更多技术支持。安来强可根据用户要求进行产品的定制开发。
 - 本产品手册仅表述产品的部分参数，需了解产品详情请浏览公司官网。
 - 安来强可能会在不另行通知的情况下对本产品手册的内容进行更改。用户可浏览公司官网以获取最新的产品手册。
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- This product manual lists the main products of ALQ Technology. Users can make selections based on their needs. If there is no suitable product in this manual, please contact ALQ in a timely manner to obtain additional technical support. ALQ can conduct customized product development according to users' requirements.
 - This product manual only presents some parameters of the products. For detailed product information, please visit the company's official website.
 - ALQ may make changes to the content of this product manual without prior notice. Users can visit the company's official website to obtain the latest version of the product manual.

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