

## EVC Series High Voltage DC contactor—EVC-100-E (100A Round Type)

### Epoxy encapsulated type



### Application information

EVC series square contactor is applicable to DC systems with working voltage up to DC1000V, mainly used in new energy vehicles, charging piles, photovoltaic, energy storage and other fields. It has the characteristics of long service life, high reliability, small size and low power consumption, as well as electromagnetic compatibility, flame retardancy and rapid response.

### Summarize

- Epoxy encapsulation – High reliable epoxy packaging technology is adopted, the contact is in a sealed environment.
- Auxiliary contact – Can be configured with auxiliary contacts to accurately feedback the main contact state.
- Filling gas – The gas filled in the ceramic cavity helps to quickly extinguish the arc and ensure that the contact is not oxidized. The protection grade of the contact can reach IP67.
- Fully RoHS compliant – More environmentally friendly.

### Part number designation

EVC	-	H		B		A		N		B	-	100S	-	E
Series		Contact form		Coil struc.		Coil line		Coil outlet connector		Installation		Current rating		Sealing method
		A : 1NO		A: PWM		A: 390mm		K: With		B: Flat, internal thread				E: Epoxy encapsulation
		H : 1NO+AUX		B : 12VDC		B: 150mm		N: Without		Blank: Flat, Stud extraction				Blank: Ceramic seal
				C : 24VDC		T: Customized								
						N: None								

### Contact Specification

Contact Arrangement	1NO
Contact Material	Copper Alloy
Operation Voltage	12~800VDC
Continue Current	100A 35mm <sup>2</sup>
Initial Contact Resistance	< 1.5mΩ (@100A)
Current Durability (35mm <sup>2</sup> 85°C) Refer to the current carrying curve	140A 600s 180A 60s 500A 1s
Max. Breaking Current	800A 400V 1ops
Auxiliary contact load rating	2A 24VDC
Min. load of auxiliary contact	0.1A 8VDC

### Durability

Electric Durability	100A 450VDC 3000 ops (Making & Breaking)
	100A 750VDC 1000 ops (Making & Breaking)
	120A 750VDC 50 ops (Breaking)
	-100A 450VDC 3000 ops (Breaking)

Mechanical Durability	300,000 ops
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Note:

1. Electric durability tests are conducted in room temperature, operating frequency : 0.6s : 5.4s
2. Mechanical durability tests are conducted in room temperature, operating frequency 0.3s : 0.3s

### Coil Specification

Coil Type	B	C
Rated voltage (23°C)	12VDC	24VDC
Max operating voltage (23°C)	16VDC	32VDC
Pick-up voltage (-40~85°C)	Max. 8.5VDC	Max. 17VDC
Drop-out voltage (-40~85°C)	Min. 0.6VDC	Min. 1.2VDC
Coil resistance (23°C)	26 (±7%) Ω	104 (±7%) Ω
Rated power (23°C)	≈5.5W	≈5.5W
Driving mode	Single coil	Single coil

### Mechanical Performance

Shock-Function	1/2 sine, 11ms, 196m/s <sup>2</sup> (20G)
Shock-Destructive	1/2 sine, 11ms, 490m/s <sup>2</sup> (50G)
Vibration	10-2000Hz, 57.9m/s <sup>2</sup> (6G)

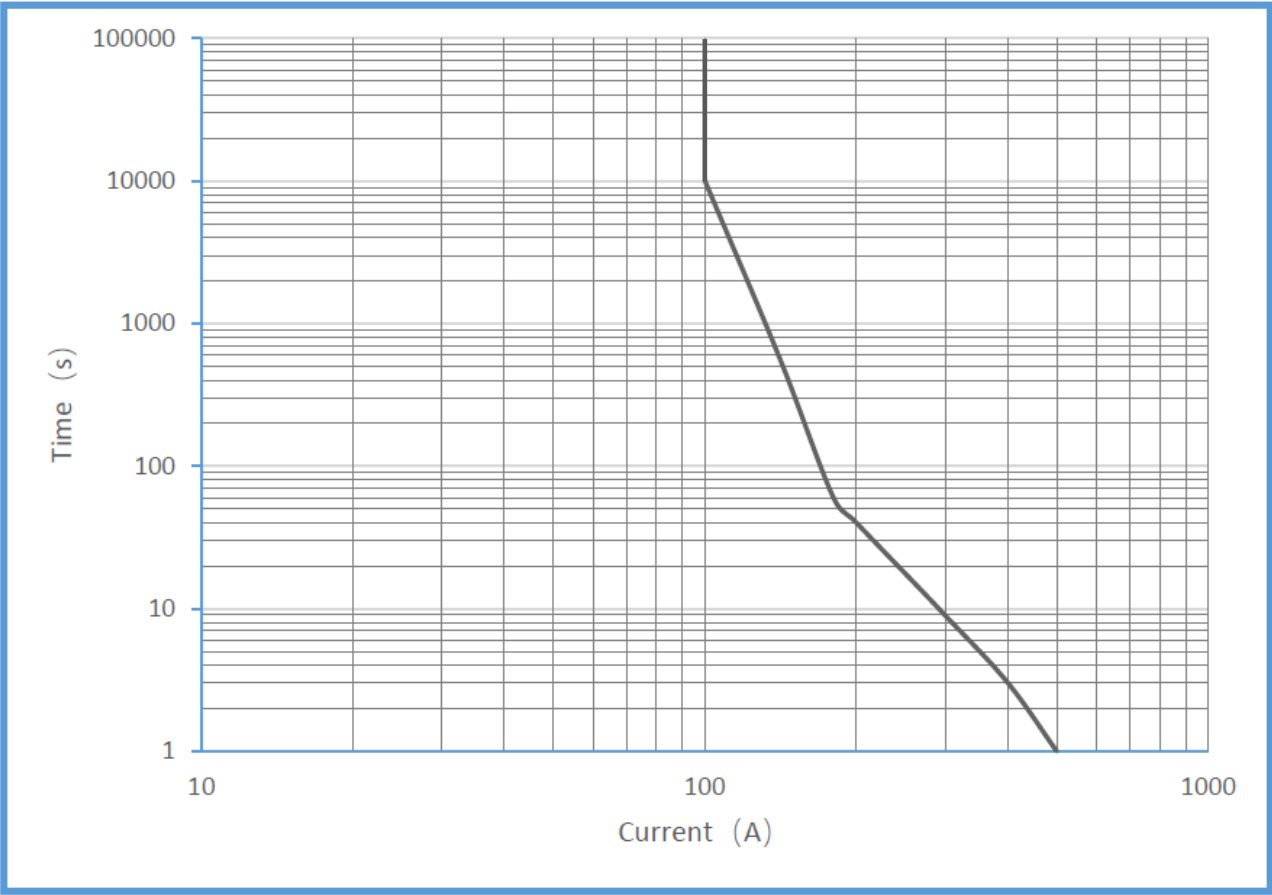
### Application Condition

Operating Temperature	-40~85°C
Operating Humidity	5%~95%RH
Storage Temperature	10~75°C
Storage Humidity	5%~95%RH
Mounting Direction	Random
Weight	About 205g

### Electric Performance

Operate time	25ms (At rated coil voltage, 23°C)
Release time	10ms (At rated coil voltage, 23°C)
Bounce time	5ms (At rated coil voltage, 23°C)
Insulation Resistance (Between open contact)	Before test: ≥ 1000MΩ After test: ≥ 50MΩ
Insulation Resistance (Between contact and coil)	Before test: ≥ 1000MΩ After test: ≥ 50MΩ
Dielectric Strength Leakage current ≤ 1mA (Between open contact)	Before test: 2500VAC, 50/60Hz, 1min After test: 2500VAC, 50/60Hz, 1min
Dielectric Strength Leakage current ≤ 1mA (Between contact and coil)	Before test: 2500VAC, 50/60Hz, 1min After test: 2500VAC, 50/60Hz, 1min

Current Carrying Curve



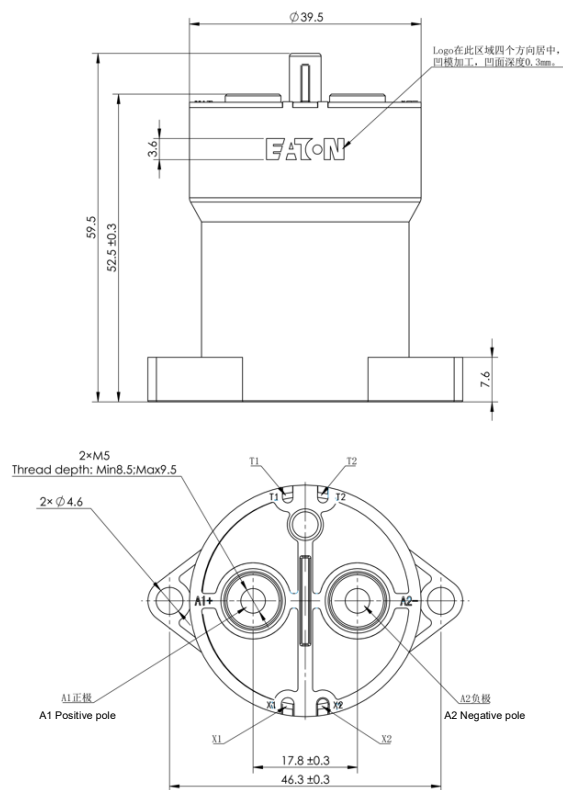
Note:

- The curve is based on the ambient temperature of 85°C, the cross-sectional area of conductor is 35mm².

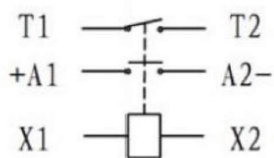
Order information

Order Part Number	Coil Type	Mounting Type	Other information
EVC-HBANB-100S-E	12VDC	Bottom Mounting	-
EVC-HCANB-100S-E	24VDC	Bottom Mounting	-

Dimension



Wiring Diagram



Note:

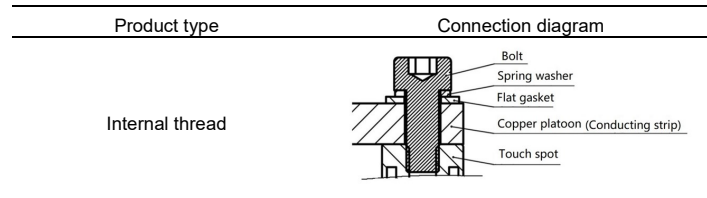
- $\Delta$  marked as important control dimension
- No tolerance marked, refer to:

Dimension (mm)	< 10	10~50	> 50
Tolerance (mm)	$\pm 0.25$	$\pm 0.5$	$\pm 0.8$

- The products are shipped with standard installation screws, gaskets, spring washers and other accessories.
- The low-voltage end of the product is led out by wire, and the default wire specification is 0.35mm<sup>2</sup>, the outgoing line of coil is black, and the outgoing line of auxiliary contact is white. (If has)

## Application considerations

- When the contactor is connected by one or more conductive copper bars, please ensure that the conductive copper bars are closely connected with the contact end surfaces (multiple copper bars need to ensure that the conductive copper bars with large current are closest to the contact end surfaces, followed by the conductive copper bars with small current), and then the flat washers, spring washers and nuts. Improper connection sequence can cause severe overheating.



- Please avoid adhering foreign matters, grease and corrosive liquid during installation, otherwise it will cause abnormal heating at the contact end of the contactor.
- The locking torque of contactor installation shall be controlled within the range specified in the table below, which may cause thread damage. Mounting screw at the load end is an option. Please refer to the following table for installation method and other information.

Installation part of load end				Body installation part		
Installation	Torque	Breaking torque	Recommended thread engagement length	Installation	Torque	Breaking torque
M5 bolt	3N·m~4N·m	≥7N·m	≥7mm	M4 bolt	1.5N·m~1.7N·m	≥3.5N·m

- Please avoid installation near strong magnetic fields (around transformers, magnets, etc.) and heating objects.
- The main contact of the contactor is polarity. Please connect the load according to the wiring diagram in the outline drawing. The reverse connection of the load will lead to the decrease of the breaking capacity of the contactor. For the reverse breaking capacity, please refer to the reverse durability of the contact.
- The contactor coil loop has no polarity, any connection can make the contactor action.
- Paralleling freewheeling diode at the coil end of the contactor as a measure to suppress the reverse voltage will prolong the release time of the contactor and lead to the decrease of the product cutting performance. It is recommended to use bidirectional zener diode and TVS tube with a clamping voltage of more than 1.5 times the rated voltage of the coil to suppress the reverse overvoltage of the coil.
- When the contactor is used in capacitive load circuit, please pay attention to taking pre charging and other measures, and it is recommended that the closing differential pressure of the contactor be controlled within 20V. Contact adhesion may be caused if pre charging measures are not taken.
- When the contactor is applied in the inductive load circuit, it is recommended to install surge absorption device in parallel with the inductive load. If no measures are taken, the cut-off performance of the contactor may be reduced.
- Please avoid collision or falling of the contactor during use, installation or transportation. In order to maintain the performance of the contactor, it is not recommended to use the contactor after impact or falling.
- The contact cavity of the contactor is filled with protective gas, and there is internal gas penetration along with the change of contact temperature. It is strictly prohibited to put the relay in the use temperature range (-40 ~ +85 °C) exceeding the product for a long time.
- For information on matching application of contactors and fuses, please contact Bussmann technical support team.

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