

HIGH VOLTAGE CONTACTORS ECK250 SERIES

INTRODUCTION

ECK250 series high-voltage DC contactor is designed for control in new energy applications. The ECK250 product line is an innovative and reliable solution for EV charging stations, solar inverters, battery energy storage systems, automated-guided vehicles (AGV) and e-Forklifts. ECK250 is hermetically sealed with ceramic technology and enable high switching capability under 1000VDC. The built-in PWM module design makes it smaller to save space.



FEATURES

- Hermetically sealed with ceramic technology
- Designed with built-in economizer, hold power 1.7W
- 500A carry current capability (see cautions)
- Maximum DC breaking current at 2000A
- Maximum DC breaking voltage at 1000VDC
- Auxiliary contact version available
- Comply with DC-1 utilization category in IEC60947-4-1

APPLICATION

- DC Charging station, Electric vehicle, AGV, Electric forklift, Energy storage systems, Photovoltaic inverter

APPROVALS

- CCC: 2022960304002220
 - CE: 724-00004
 - UL: E82292
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High Voltage Contactors ECK250 Series

Contact Data

Continuous carry current	300A (conductor size: 185mm ²) 500A (conductor size: 202mm ²)
Rated switching current	250A
Max. Switching voltage	1000VDC
Contact arrangement	1 Form X (SPST-NO-DM)
Initial voltage drop	≤ 0.4mΩ (250A, after 1 minute)
Operate time, max. (At 23°C)	30ms
Release time, max. (At 23°C)	10ms
Mechanical life	500,000 cycles

Contact Ratings

Load	Cycles
250A, 450VDC, make/break, resistive	6000
250A, 800VDC, make/break, resistive	1000
200A, 1000VDC, make/break, resistive	1000
250A, 1000VDC, make/break, resistive	400
600A making, resistive	6000

Other Data

Material compliance:EU RoHS/ELV, China RoHS, REACH, Halogen content refer to the product Compliance Support Center at www.te.com/customersupport/rohssupportcenter	
Ambient temperature	-40°C to 85°C
Vibration resistance (functional)	Sine, 10-2000Hz, 4.5G
Shock resistance (functional)	11ms 1/2 Sine, Peak 20G
Terminal type	Screw for contact, wire for coil
Weight	380g
Packaging/Unit	Box/24 pcs.

Coil versions, DC Coil

Coil Code	Nominal Voltage	Nominal Operate Current	Max Starting Current	Operate Voltage	Maximum Operate Voltage	Release Voltage	Coil Power
A	9-36VDC	0.13A@12VDC 0.07A@24VDC	3.6A	≤9VDC	36VDC	≥3VDC	Start: 43.2W Hold: 1.7W

All figures are given for coil without pre-energization, at ambient temperature +23°C.

CE Declaration (IEC60947-4-1)

Rated Operational Current	Utilization Category	Switching Cycles
100A	DC-1	6,050

Auxiliary Contact Data

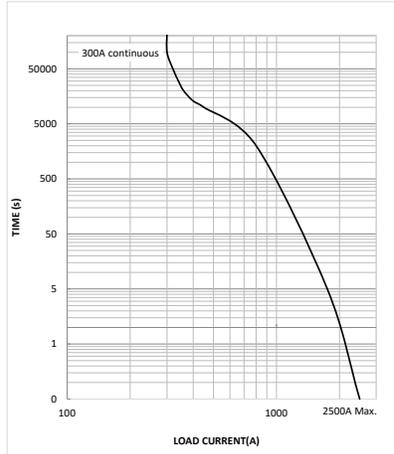
Contact form	1 Form A (SPST-NO)
Contact current, Max.	2A, 30VDC
Contact current, Min.	10mA, 8VDC
Contact resistance, Max.	0.4Ω @ 30VDC

Insulation Data

Dielectric Withstand Voltage (leakage current <1mA)	
Between open main contacts	3500Vrms
Between main contact and coil	3500Vrms
Between main contacts and aux contacts	3500Vrms
Between open aux contacts	750Vrms
Initial Insulation Resistance @ 1000VDC	
Between insulated elements	> 1x10 ⁹ Ω

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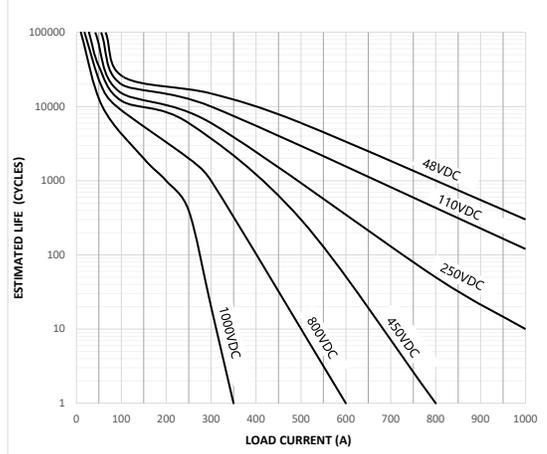
Current Carrying Capability Curve



NOTE

- The data is measured at the environment temperature 85°C with cross section area of wire 185mm² min.

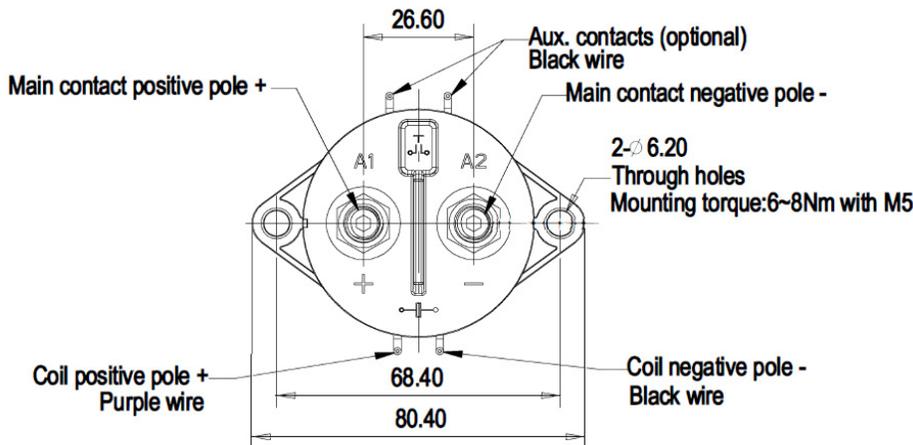
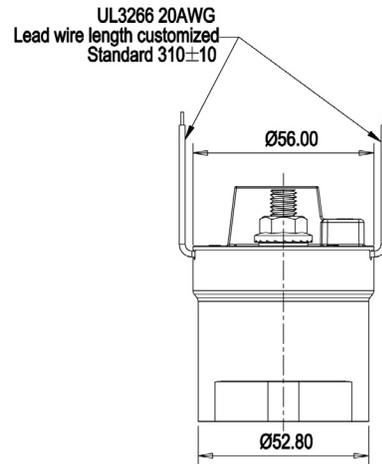
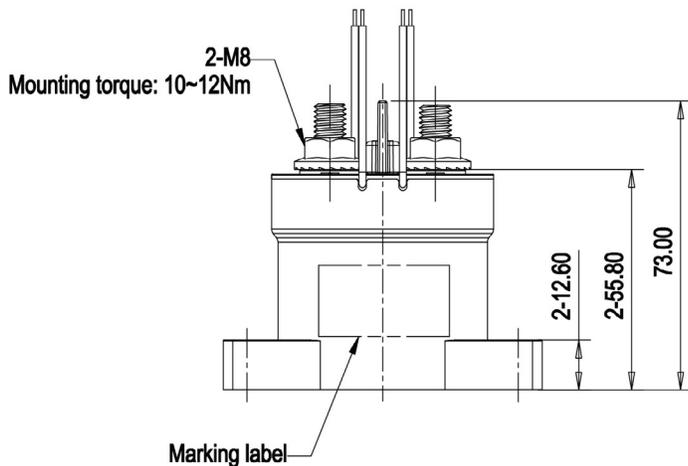
Estimated Make & Break Power Switching Ratings



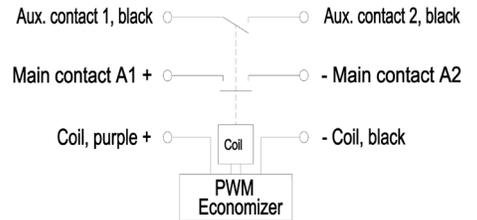
NOTE

- The curve was created based on extrapolated data with few typical points, users are recommended to confirm performance in actual application.
- The typical data were estimated with resistive load at room temperature.

Dimension

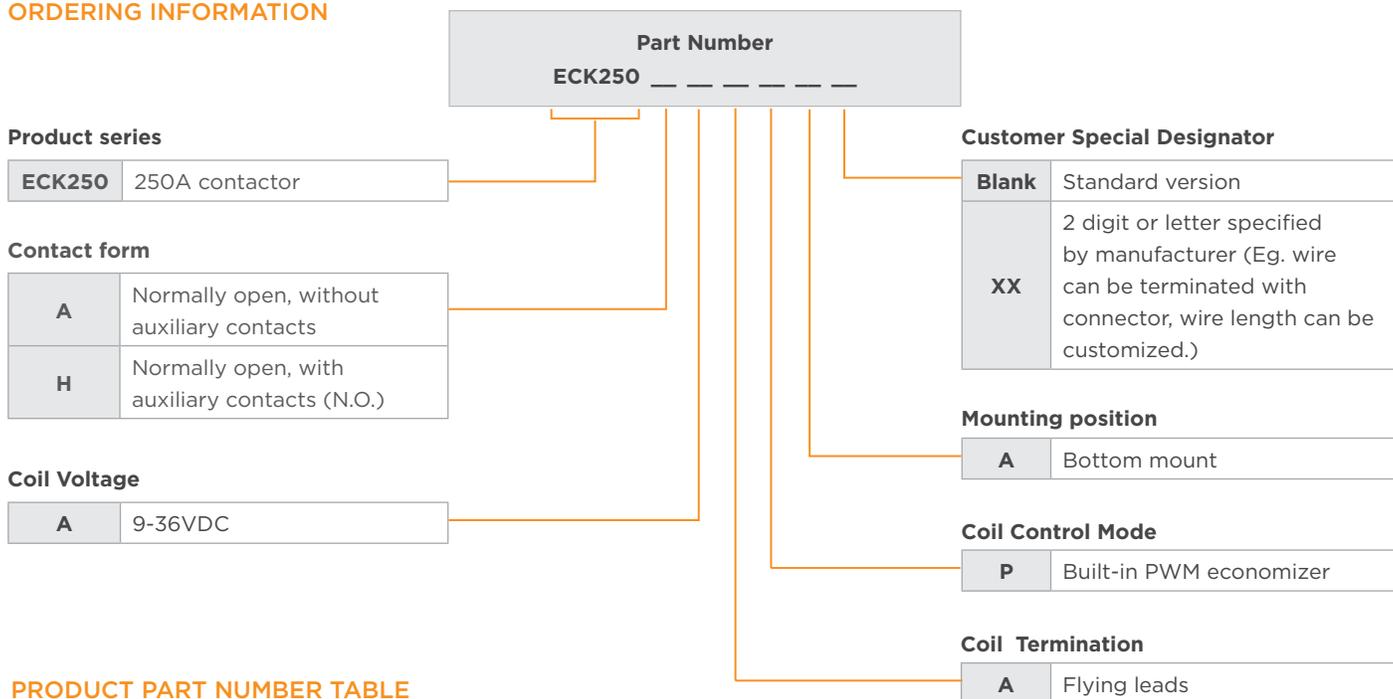


Circuit Diagram



General Tolerance	
Dimension	Tolerance
<10	±0.3
10 - 50	±0.6
>50	±1.0

ORDERING INFORMATION



PRODUCT PART NUMBER TABLE

Product Code	Contact Form	Mounting Position	Coil	Coil Control Mode	Part Number
ECK250AAAPA	Normally open, without auxiliary contacts	Bottom	9-36VDC	Built-in PWM economizer	2-2071567-2
ECK250HAAPA	Normally open, with auxiliary contacts (N.O.)				2-2071567-1

Note: Only typical part numbers are listed above, other types please contact TE engineer.

CAUTIONS

- Do not use the product when product is dropped or broken.
- Avoid mounting the contactor with the main contact screw terminals in downward direction, otherwise the contactor performance will not be guaranteed.
- Please use correctly according to the mark on the surface of the product. Main contact terminals and coil wires have polarity difference. When the connection polarity is reversed, the electrical characteristics promised in the datasheet will not be guaranteed.
- Please drive the product coil through the fast rising (step type power supply mode), otherwise the contactors will not operate.
- If using with diodes for coil, it may lead to a decline in product switching performance.
- Please consider electromagnetic interference when using the product.
- Screw locking torque of main contact terminals should be 10-12 N·m for M8 screw. Screw locking torque of product bottom mounting should be 6-8 N·m for M5 screw.
- For continuous high carry current condition above 300A, the upper limit of the absolute temperature is 170°C, evaluated according to IEC 60695-10-2. To maintain the maximum long-term performance, user should select the appropriate connection cable cross section or active cooling to control the temperature.
- Suitable for applications under Uimp 6kV.

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