

HIGH VOLTAGE CONTACTORS ECK200 SERIES - UP TO 500AMP

INTRODUCTION

TE Connectivity's (TE) ECK200 series high-voltage DC contactor is designed for control in new energy applications. The ECK200 product line is a noteworthy and reliable solution for EV charging stations, solar inverters, battery energy storage systems, automated-guided vehicles (AGV) and electric forklifts. ECK200 is hermetically sealed with ceramic technology and enables high switching capability under 1000VDC. The built-in PWM module design makes it smaller to save space.

FEATURES

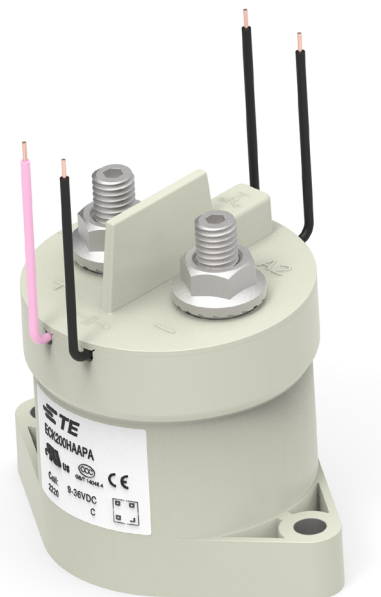
- Hermetically sealed with ceramic technology
- Designed with built-in economizer, hold power 1.7W
- 500A carry current capability (see cautions)
- Maximum DC breaking current at 2000A
- Maximum DC breaking voltage at 1000VDC
- Auxiliary contact version available
- Comply with DC-1 utilization category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

APPLICATIONS

- DC charging stations
- Electric vehicles
- AGV
- Electric forklifts
- Energy storage systems
- Photovoltaic inverters
- DC converters
- Battery protection boards

APPROVALS

- CE: 724-00004
- UL: E82292
- TUV: R50571784
- CCC approved



High Voltage Contactors ECK200 Series

CONTACT DATA

| | |
|-----------------------------------|--------------------------------|
| Contact current | 500A |
| Maximum Switching voltage | 1000VDC |
| Contact arrangement | 1 Form X (SPST-NO-DM) |
| Initial contact resistance | ≤ 0.4mΩ (200A, after 1 minute) |
| Operating time, maximum (At 23°C) | 30ms |
| Release time, maximum (At 23°C) | 10ms |
| Mechanical life | |
| With auxiliary contact | 200,000 cycles |
| Without auxiliary contact | 500,000 cycles |

CONTACT RATINGS

| Load | Cycles |
|--------------------------------------|--------|
| 200A, 450VDC, make/break, resistive | 6000 |
| 200A, 1000VDC, make/break, resistive | 1000 |

Note:

- Only typical rating listed, please refer to make/break curves on the next page for more details at different current and voltage.

OTHER DATA

| | |
|---|----------------------------------|
| Material compliance: EU RoHS/ELV, China RoHS, REACH, and for halogen content refer to the product compliance support Center at www.te.com/customer-support/rohssupportcenter | |
| Ambient temperature | -40°C to 85°C |
| Vibration resistance (functional) | Sine, 10-2000Hz, 6G |
| 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 Operating Current | Max Starting Current | Operating Voltage | Maximum Operating Voltage | Release Voltage | Coil Power |
|-----------|-----------------|----------------------------|----------------------|-------------------|---------------------------|-----------------|----------------------------|
| A | 9VDC ~ 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

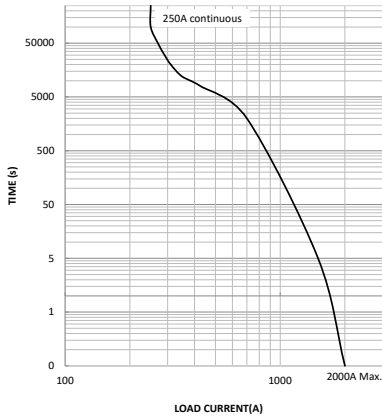
| | |
|-----------------------------|--------------------|
| Contact form | 1 Form A (SPST-NO) |
| Contact current, maximum | 2A, 30VDC |
| Contact current, minimum | 10mA, 24VDC |
| Contact resistance, maximum | 0.4Ω @ 30VDC |

INSULATION DATA

| | |
|---|-----------------------|
| Dielectric Withstand Voltage (leakage current <1mA) | |
| Between open main contacts | 4300Vrms |
| Between main contact and coil | 4300Vrms |
| Between main contacts and auxiliary contacts | 4300Vrms |
| Between open auxiliary contacts | 750Vrms |
| Initial Insulation Resistance @ 1000VDC | |
| Between insulated elements | > 1x10 ⁹ Ω |

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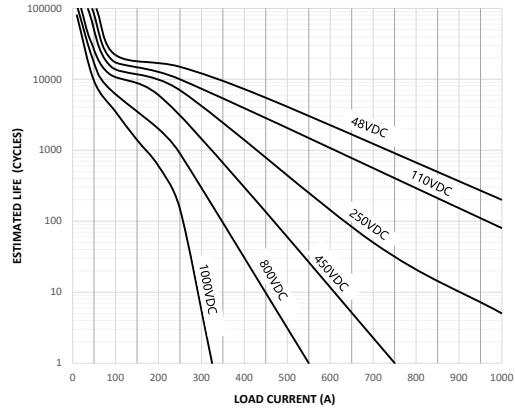
CURRENT CARRYING CAPABILITY CURVE



Notes:

- The data is measured at the environment temperature 85°C with cross section area of wire 150mm² minimum. Smaller cable cross section wires are also allowed depending on the end users thermal conditions.
- For 500A current, recommend >202mm² conductor size and please users select the appropriate connection conductor cross section or active cooling to control the temperature. Keep main contact terminals @130°C max for long-term continuous carry, @140°C max for two hours.

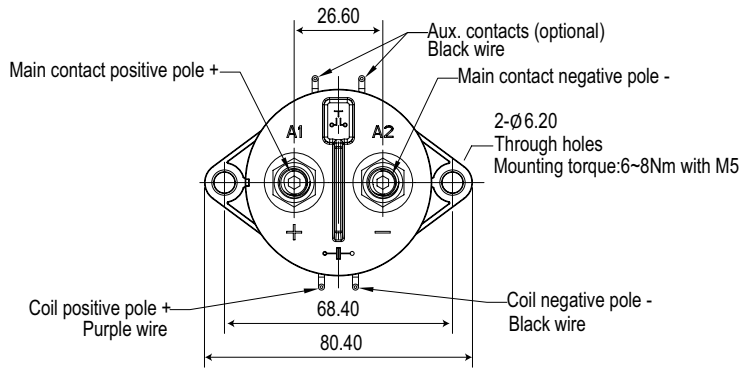
ESTIMATED MAKE & BREAK POWER SWITCHING RATINGS



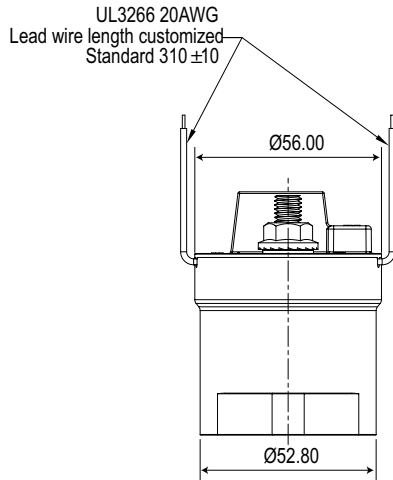
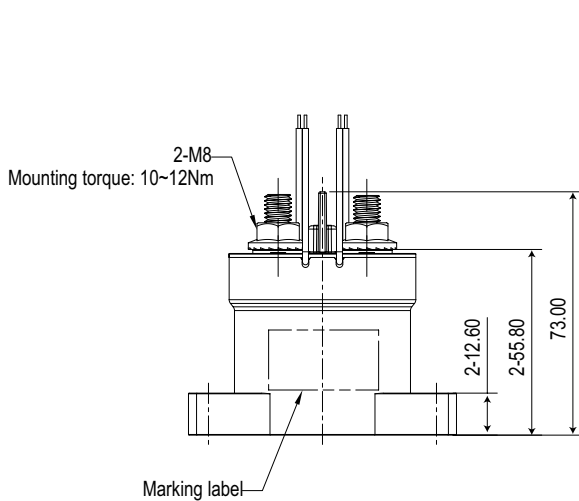
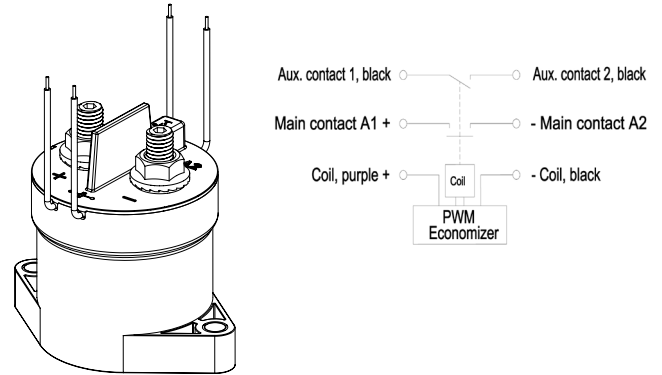
Notes:

- 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.

DIMENSIONS



CIRCUIT DIAGRAM

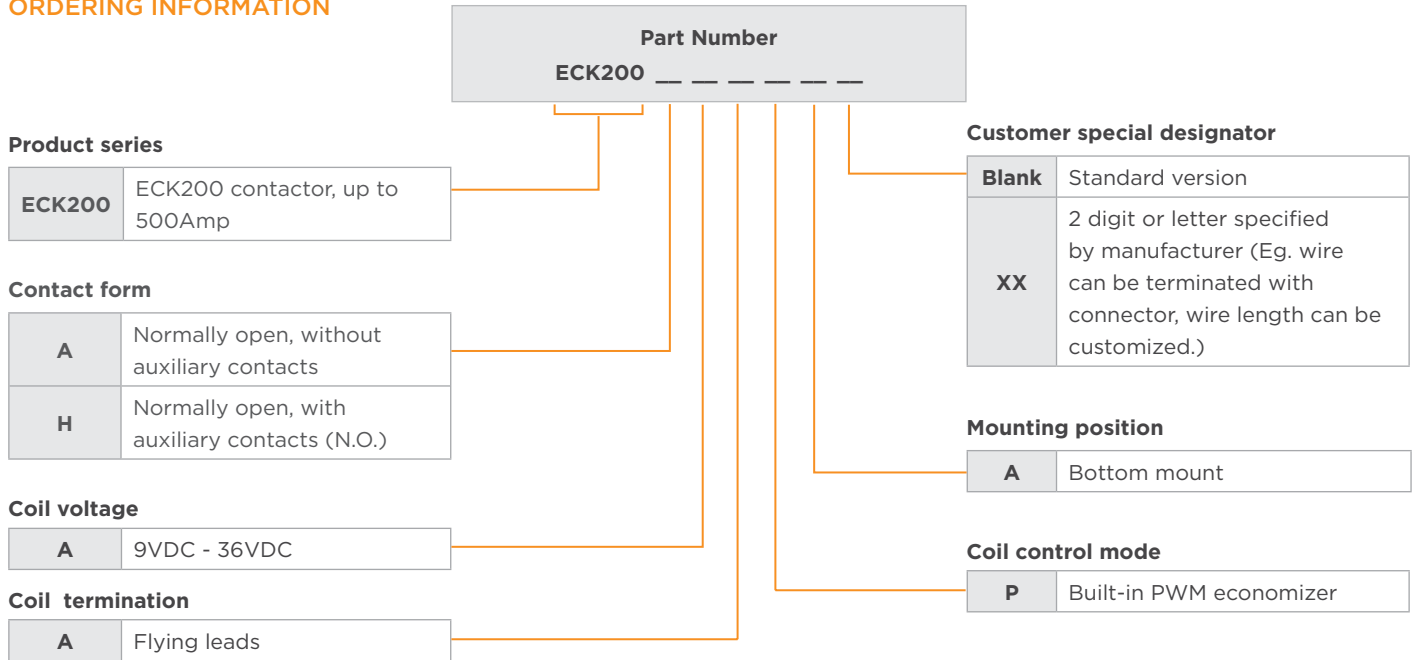


Note:

- Main contact terminal connection and coil connection with positive and negative difference.

| 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 |
|--------------|---|-------------------|--------------|-------------------------|--------------------|
| ECK200AAAPA | Normally open, without auxiliary contacts | Bottom | 9VDC - 36VDC | Built-in PWM economizer | <u>1-2071567-2</u> |
| ECK200HAAPA | Normally open, with auxiliary contacts (N.O.) | | | | <u>1-2071567-1</u> |

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 achieved.
- 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.
- There are diodes built in the PWM economizer of the coil inside the contactor, additional diodes are not required.
- Please consider electromagnetic interference when using the product.
- Screw locking torque of main contact terminals should be 10 N·m - 12 N·m for M8 screw. Screw locking torque of product bottom mounting should be 6 N·m - 8 N·m for M5 screw.
- Suitable for applications under Uimp 6kV.

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