

# HIGH VOLTAGE CONTACTORS ECK150 SERIES

## INTRODUCTION

ECK150 series high-voltage DC contactor is designed for control in new energy applications. The ECK150 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. ECK150 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
- Maximum DC breaking current at 1500A
- 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
- TUV: CN221S2D 002



# High Voltage Contactors ECK150 Series

## Contact Data

|                              |                                |
|------------------------------|--------------------------------|
| Contact current              | 200A                           |
| Max. Switching voltage       | 1000VDC                        |
| Contact arrangement          | 1 Form X (SPST-NO-DM)          |
| Initial contact resistance   | ≤ 0.4mΩ (150A, 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 |
|--------------------------------------|--------|
| 150A, 450VDC, make/break, resistive  | 6000   |
| 150A, 1000VDC, make/break, resistive | 1000   |

### Note:

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

## Other Data

|  |                                  |
|--|----------------------------------|
| Material compliance:EU RoHS/ELV, China RoHS, REACH, Halogen content refer to the product Compliance Support Center at <a href="http://www.te.com/customer-support/rohssupportcenter">www.te.com/customer-support/rohssupportcenter</a> |                                  |
| 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 Operate Current    | Max Starting Current | Operate Voltage | Maximum Operate Voltage | Release Voltage | Coil Power                 |
|-----------|-----------------|----------------------------|----------------------|-----------------|-------------------------|-----------------|----------------------------|
| A         | 9-36VDC         | 0.13A@12VDC<br>0.07A@24VDC | 3.6A                 | ≤9VDC           | 36VDC                   | ≥3VDC           | Start: 43.2W<br>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

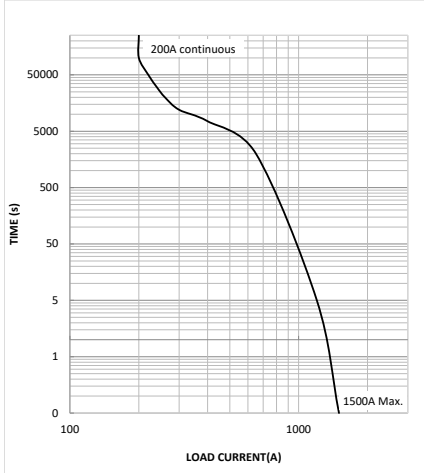
|                          |                    |
|--------------------------|--------------------|
| Contact form             | 1 Form A (SPST-NO) |
| Contact current, Max.    | 2A, 30VDC          |
| Contact current, Min.    | 10mA, 8VDC         |
| Contact resistance, Max. | 0.4Ω @ 30VDC       |

## 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 <sup>9</sup> Ω |

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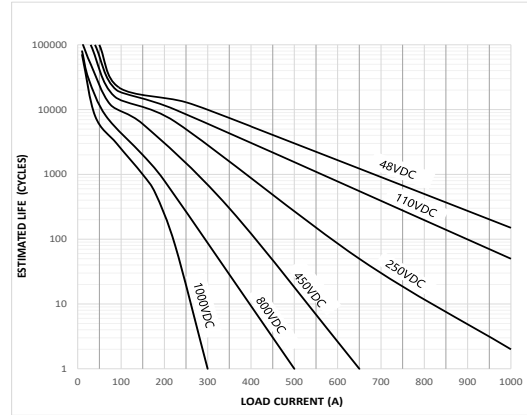
## Current Carrying Capability Curve



**Note:**

- The data is measured at the environment temperature 85°C with cross section area of wire 95mm<sup>2</sup> min. Smaller conductor are also allowed depending on the end users thermal conditions.

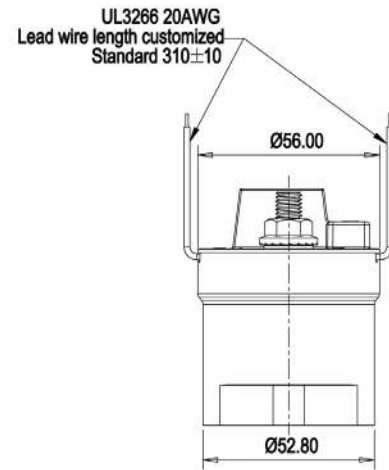
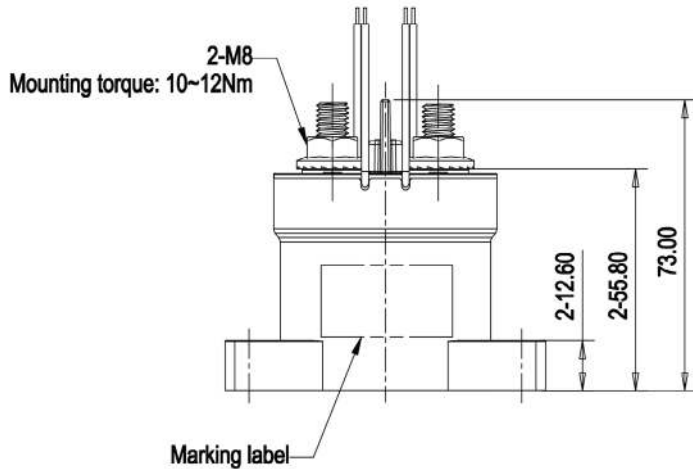
## Estimated Make & Break Power Switching Ratings



**Note:**

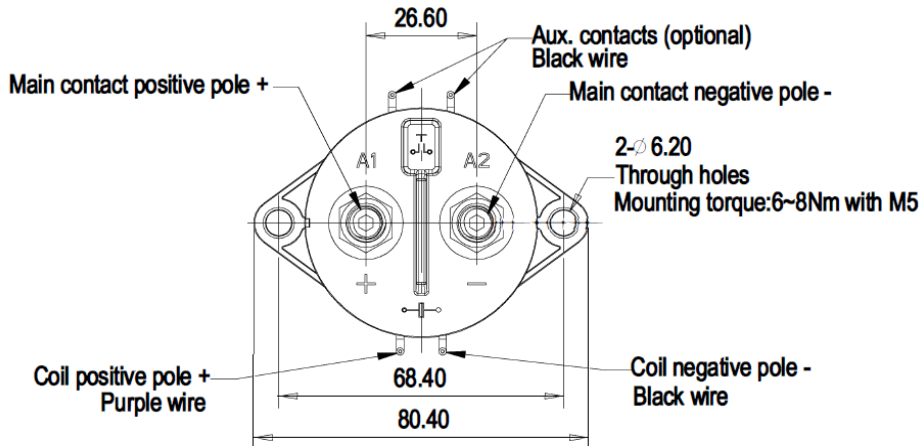
- The curve was created based on extrapolated data with few typical points, users are recommended to confirm performance in actual application.
- The typical data were estimated with resistive load at room temperature.

## Dimension

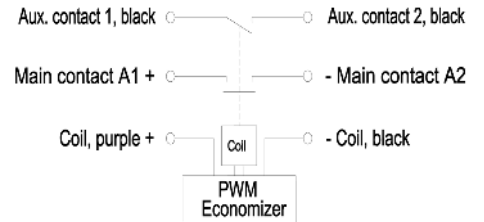


**Note:**

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

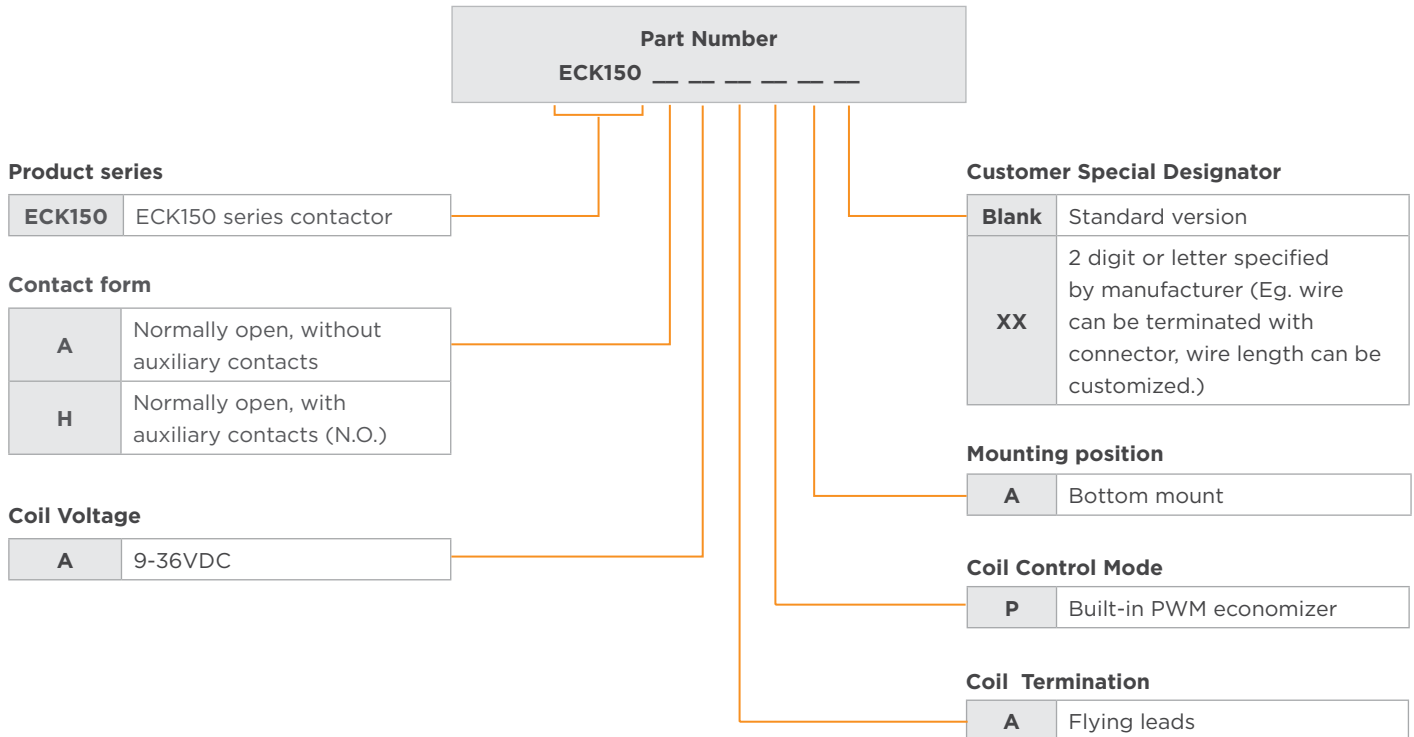


## Circuit Diagram



| 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               |
|--------------|---|-------------------|---------|-------------------------|---------------------------|
| ECK150AAAPA  | Normally open, without auxiliary contacts     | Bottom            | 9-36VDC | Built-in PWM economizer | <a href="#">2071567-2</a> |
| ECK150HAAPA  | Normally open, with auxiliary contacts (N.O.) |                   |         |                         | <a href="#">2071567-1</a> |

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.
- 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.
- Suitable for applications under Uimp 6kV.

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