

# ELR 3- 24DC/500AC- 9 - Solid-state contactor



2297219

<https://www.phoenixcontact.com/us/products/2297219>

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Three-phase solid-state contactor with 24 V DC input, 9 A output current, zero voltage switch, optionally with thermal fuse

## Your advantages

- Optional thermal fuse
- Stable and short switching times
- Noise and wear-free switching
- Long service life
- High switching frequency
- Integrated protection circuit

## Commercial data

|                                      |                                |
|--------------------------------------|--------------------------------|
| Item number                          | 2297219                        |
| Packing unit                         | 1 pc                           |
| Note                                 | Made to order (non-returnable) |
| Sales key                            | C472                           |
| Product key                          | DK7212                         |
| GTIN                                 | 4046356175579                  |
| Weight per piece (including packing) | 701.8 g                        |
| Weight per piece (excluding packing) | 694 g                          |
| Customs tariff number                | 85364900                       |
| Country of origin                    | DE                             |

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## Technical data

### Product properties

|                |                       |
|----------------|-----------------------|
| Product type   | Solid-state contactor |
| Operating mode | 100% operating factor |

### Electrical properties

|                             |                                   |
|-----------------------------|-----------------------------------|
| Number of phases            | 3                                 |
| Switching frequency         | ≤ 10 Hz                           |
| Test voltage (Input/output) | 5 kV <sub>rms</sub> (50 Hz, 60 s) |
| Switching frequency         | ≤ 10 Hz                           |

### Insulation characteristics

|                                                                                  |                  |
|----------------------------------------------------------------------------------|------------------|
| Rated insulation voltage                                                         | 500 V            |
| Rated surge voltage                                                              | 6 kV             |
| Overvoltage category                                                             | III              |
| Degree of pollution                                                              | 2                |
| Insulation characteristics between the control input voltage to the main circuit | Basic insulation |

### Input data

#### Control

|                                       |                                                                   |
|---------------------------------------|-------------------------------------------------------------------|
| Input name                            | Control input right/left                                          |
| Rated actuating voltage $U_C$         | 24 V DC                                                           |
| Triggering voltage range              | 19.2 V DC ... 30 V DC                                             |
| Voltage range with reference to $U_C$ | 0.8 ... 1.25<br>0.8 ... 1.25                                      |
| Rated actuating current $I_C$         | 8.3 mA                                                            |
| Switching threshold                   | 9.6 V ("0" signal)<br>19.2 V ("1" signal)                         |
| Protective circuit                    | Reverse polarity protection; Suppressor diode<br>Surge protection |
| Error indication                      | Red LED                                                           |
| Status display                        | LED (yellow)                                                      |

### Output data

#### AC output

|                                   |                      |
|-----------------------------------|----------------------|
| Rated operating voltage $U_e$     | 500 V AC             |
| Operating voltage range           | 48 V AC ... 575 V AC |
| Rated operating current at AC-51  | 9 A                  |
| Rated operating current at AC-53a | 9 A                  |
| Peak offstate voltage             | 1200 V               |
| Mains frequency                   | 40 Hz ... 100 Hz     |

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|                          |                                  |
|--------------------------|----------------------------------|
| Load current range       | 100 mA ... 9 A (see to derating) |
| Leakage current          | 6 mA                             |
| Residual voltage         | < 1.5 V                          |
| Surge current            | 300 A (t = 10 ms)                |
| Max. load value          | 580 A <sup>2</sup> s             |
| Protective circuit       | RCV circuit                      |
| Surge voltage protection | > 575 V AC                       |

## Connection data

### Control circuits

|                                  |                                                                        |
|----------------------------------|------------------------------------------------------------------------|
| Connection method                | Screw connection                                                       |
| Stripping length                 | 8 mm                                                                   |
| Screw thread                     | M3                                                                     |
| Conductor cross-section rigid    | 0.2 mm <sup>2</sup> ... 2.5 mm <sup>2</sup>                            |
| Conductor cross-section flexible | 0.2 mm <sup>2</sup> ... 2.5 mm <sup>2</sup>                            |
| Conductor cross-section AWG      | 24 ... 14                                                              |
| Tightening torque                | 0.5 Nm ... 0.6 Nm<br>5 lb <sub>f</sub> -in. ... 7 lb <sub>f</sub> -in. |

### Load circuit

|                                  |                                                                        |
|----------------------------------|------------------------------------------------------------------------|
| Connection method                | Screw connection                                                       |
| Stripping length                 | 8 mm                                                                   |
| Screw thread                     | M3                                                                     |
| Conductor cross-section rigid    | 0.2 mm <sup>2</sup> ... 2.5 mm <sup>2</sup>                            |
| Conductor cross-section flexible | 0.2 mm <sup>2</sup> ... 2.5 mm <sup>2</sup>                            |
| Conductor cross-section AWG      | 24 ... 14                                                              |
| Tightening torque                | 0.5 Nm ... 0.6 Nm<br>5 lb <sub>f</sub> -in. ... 7 lb <sub>f</sub> -in. |

## Signaling

|                  |              |
|------------------|--------------|
| Status display   | LED (yellow) |
| Error indication | Red LED      |

## Dimensions

|        |          |
|--------|----------|
| Width  | 67.5 mm  |
| Height | 99 mm    |
| Depth  | 114.5 mm |

## Environmental and real-life conditions

### Ambient conditions

|                                         |                  |
|-----------------------------------------|------------------|
| Degree of protection                    | IP20             |
| Ambient temperature (operation)         | -25 °C ... 70 °C |
| Ambient temperature (storage/transport) | -25 °C ... 70 °C |

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## Approvals

### UL approval

|             |              |
|-------------|--------------|
| Certificate | NMFT.E323771 |
|             | NRNT.E172140 |

### UL data

|      |                                           |
|------|-------------------------------------------|
| SCCR | 5 kA (20 A RK5 (standard fault) fuse)     |
| FLA  | 2 A (at 500 V, AC Resistance)             |
|      | 2 A (at 500 V, AC General USE)            |
|      | 2 A (at 500 V, AC Resistance Air Heating) |

## Standards and regulations

### Standards/regulations

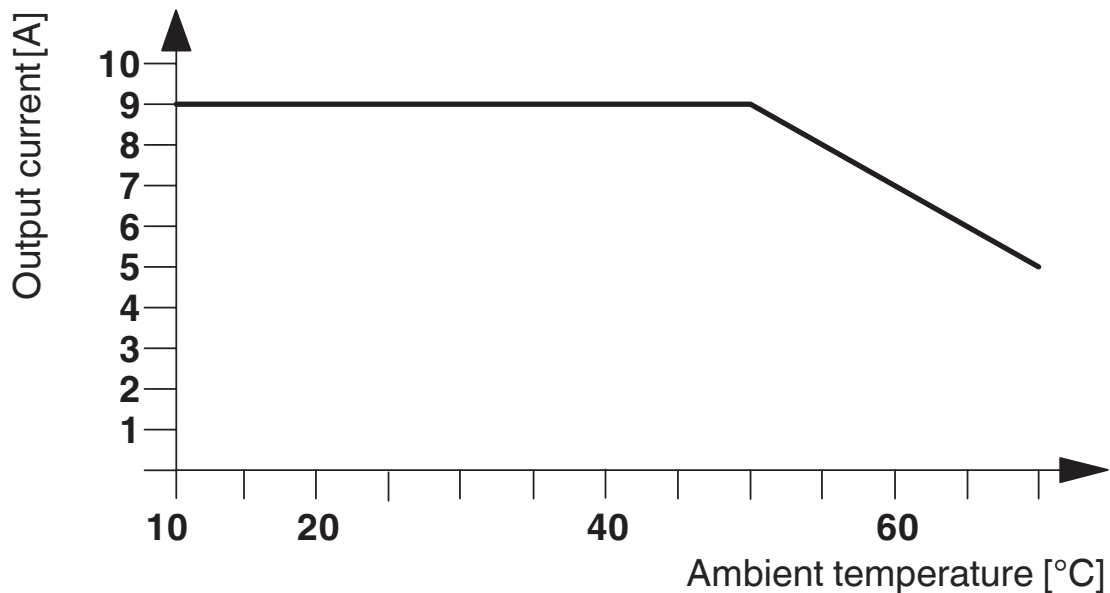
|                       |              |
|-----------------------|--------------|
| Standards/regulations | DIN EN 50178 |
|                       | EN 60947     |

## Mounting

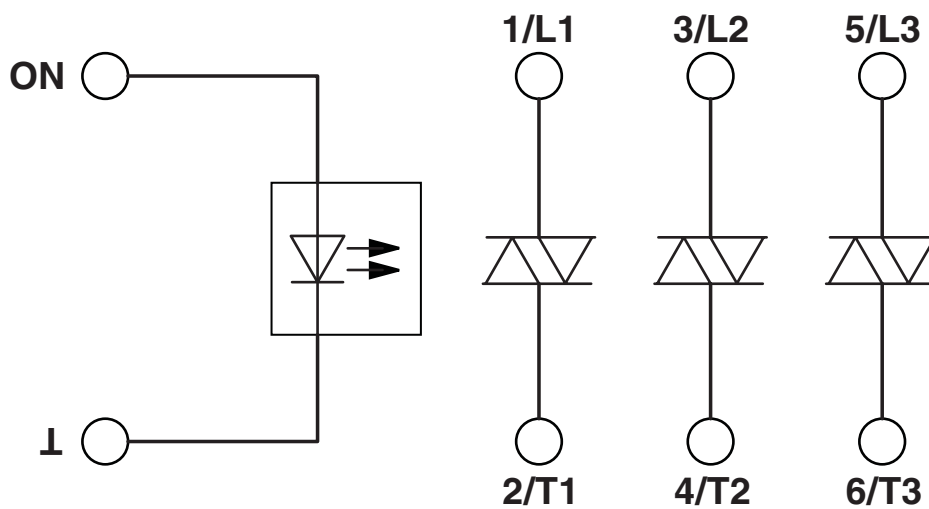
|                   |                                     |
|-------------------|-------------------------------------|
| Mounting type     | DIN rail mounting                   |
| Assembly note     | can be aligned with spacing = 20 mm |
| Mounting position | Vertical (horizontal DIN rail)      |

Drawings

Diagram



Block diagram



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## Classifications

### ECLASS

ECLASS-15.0

27371003

### ETIM

ETIM 9.0

EC002055

### UNSPSC

UNSPSC 21.0

39122333

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## Environmental product compliance

### EU RoHS

|                                         |              |
|-----------------------------------------|--------------|
| Fulfills EU RoHS substance requirements | Yes          |
| Exemption                               | 7(a), 7(c)-I |

### China RoHS

|                                        |                                                                                                                                                                                                                                   |
|----------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Environment friendly use period (EFUP) | EFUP-50                                                                                                                                                                                                                           |
|                                        | An article-related China RoHS declaration table can be found in the download area for the respective article under "Manufacturer declaration". For all articles with EFUP-E, no China RoHS declaration table issued and required. |

### EU REACH SVHC

|                                     |                      |
|-------------------------------------|----------------------|
| REACH candidate substance (CAS No.) | Lead(CAS: 7439-92-1) |
|-------------------------------------|----------------------|

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