

# ELR H3-I-SC- 24DC/500AC-9 - Hybrid motor starter



2900545

<https://www.phoenixcontact.com/us/products/2900545>

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Hybrid motor starter for starting 3~ AC motors up to 500 V AC and 9 A output current, with 24 V DC control voltage, adjustable overload shutdown, and screw connection.

## Your advantages

- 22.5 mm wide
- Low-wear switching
- Reduction in wiring
- Long service life
- Space saving
- 3-phase loop bridges
- Adjustable current for bimetal function

## Commercial data

|                                      |               |
|--------------------------------------|---------------|
| Item number                          | 2900545       |
| Packing unit                         | 1 pc          |
| Minimum order quantity               | 1 pc          |
| Sales key                            | C470          |
| Product key                          | DK7423        |
| GTIN                                 | 4046356527705 |
| Weight per piece (including packing) | 243.7 g       |
| Weight per piece (excluding packing) | 205.06 g      |
| Customs tariff number                | 85371098      |
| Country of origin                    | DE            |

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## Technical data

### Product properties

|                |                       |
|----------------|-----------------------|
| Product type   | Hybrid motor starters |
| Product family | CONTACTRON            |
| Operating mode | 100% operating factor |

### Electrical properties

|   |                         |
|---|-------------------------|
| Number of phases                                | 3                       |
| Motor starter type                              | Direct starter          |
| Switching frequency                             | ≤ 2 Hz (Load-dependent) |
| Maximum power dissipation for nominal condition | 13.5 W                  |
| Switching frequency                             | ≤ 2 Hz (Load-dependent) |
| Maximum power dissipation                       | 14.6 W                  |
| Minimum power dissipation                       | 1.1 W                   |
| Coordination type                               | 1                       |

### Supply

|  |   |
|--|---|
| Rated control circuit supply voltage $U_S$ | 24 V DC   |
| Control supply voltage range               | 19.2 V DC ... 30 V DC                           |
| Rated control supply current $I_S$         | 40 mA   |
| Protective circuit                         | Surge protection<br>Reverse polarity protection |

### 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 and control supply voltage, and auxiliary circuit to the main circuit | Safe isolation (IEC 60947-1) at operating voltage ≤ 300 V AC (e. g., 230/400 V AC, 277/480 V AC)<br>Basic insulation (IEC 60947-1) at operating voltage 300 V AC ... 500 V AC |
| Isolation characteristics between the control input and control supply voltage to auxiliary circuit                        | Safe isolation (IEC 60947-1) in the auxiliary circuit ≤ 300 V AC  |

### Emergency tripping

|                   |        |
|-------------------|--------|
| Operate threshold | > 45 A |
| Response time     | < 2 s  |

### Input data

#### Control

|                               |                       |
|-------------------------------|-----------------------|
| Input name                    | Control input         |
| Rated actuating voltage $U_C$ | 24 V DC               |
| Triggering voltage range      | 19.2 V DC ... 30 V DC |

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|                               |                             |
|-------------------------------|-----------------------------|
| Rated actuating current $I_C$ | 5 mA (Input type 1)         |
| Switching threshold           | 9.6 V ("0" signal)          |
|                               | 19.2 V ("1" signal)         |
| Typical turn-off time         | < 30 ms                     |
| Protective circuit            | Reverse polarity protection |

## Output data

### AC output

|   |                                 |
|---|---------------------------------|
| Rated operating voltage $U_e$                     | 500 V AC                        |
| Operating voltage range                           | 42 V AC ... 550 V AC            |
| Rated operating current $I_e$                     | 9 A (AC-51)                     |
|   | 6.5 A (AC-53a)                  |
| Mains frequency                                   | 50/60 Hz                        |
| Load current range                                | 1.5 A ... 9 A (see to derating) |
| Trigger characteristic in acc. with IEC 60947-4-2 | Class 10A                       |
| Cooling time                                      | 20 min (for auto reset)         |
| Leakage current                                   | 0 mA                            |
| Protective circuit                                | Surge protection                |

### Acknowledge output

|   |  |
|---|--|
| Note  | Confirmation: floating change-over contact, signal contact |
| Contact switching type                              | 1 changeover contact                                       |
| Switching capacity in accordance with IEC 60947-5-1 | 3 A (230 V, AC15)  |
|   | 2 A (24 V (DC13))  |

## 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                                 |
|                                  | 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                           |

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5 lb<sub>F</sub>-in. ... 7 lb<sub>F</sub>-in.

## Signaling

|                           |              |
|---------------------------|--------------|
| Status display            | LED (yellow) |
| Operating voltage display | Green LED    |
| Error indication          | Red LED      |

## Dimensions

|        |         |
|--------|---------|
| Width  | 22.5 mm |
| Height | 107 mm  |
| Depth  | 114 mm  |

## Material specifications

|  |              |
|--|--------------|
| Flammability rating according to UL 94 (Housing) | V0 (Housing) |
|--|--------------|

## Environmental and real-life conditions

### Ambient conditions

|   |                                     |
|---|-------------------------------------|
| Degree of protection                    | IP20                                |
| Ambient temperature (operation)         | -25 °C ... 70 °C (observe derating) |
| Ambient temperature (storage/transport) | -40 °C ... 80 °C                    |
| Altitude                                | ≤ 2000 m                            |

## Approvals

### UL approval

|             |              |
|-------------|--------------|
| Certificate | NLDX.E228652 |
|-------------|--------------|

### UL data

|                    |  |
|--------------------|--|
| SCCR               | 100 kA (500 V AC (fuse: 30 A class CC/30 A class J (high fault)))      |
|                    | 5 kA (500 V AC (fuse: 20 A RK5 (standard fault)))                      |
| FLA                | 6.5 A (500 V AC)   |
| Group installation | 20 A (class RK5, SCCR 5kA, #24 - 14 AWG max. solid and stranded)       |
|                    | 30 A (class CC or J, SCCR 100kA, #24 - 14 AWG max, solid and stranded) |
| Category code      | NLDX / NRNT  |

## Standards and regulations

### Standards/regulations

|                       |               |
|-----------------------|---------------|
| Standards/regulations | IEC 60947-1   |
|                       | IEC 60947-4-2 |

## Mounting

|               |                                     |
|---------------|-------------------------------------|
| Mounting type | DIN rail mounting                   |
| Assembly note | alignable, for spacing see derating |

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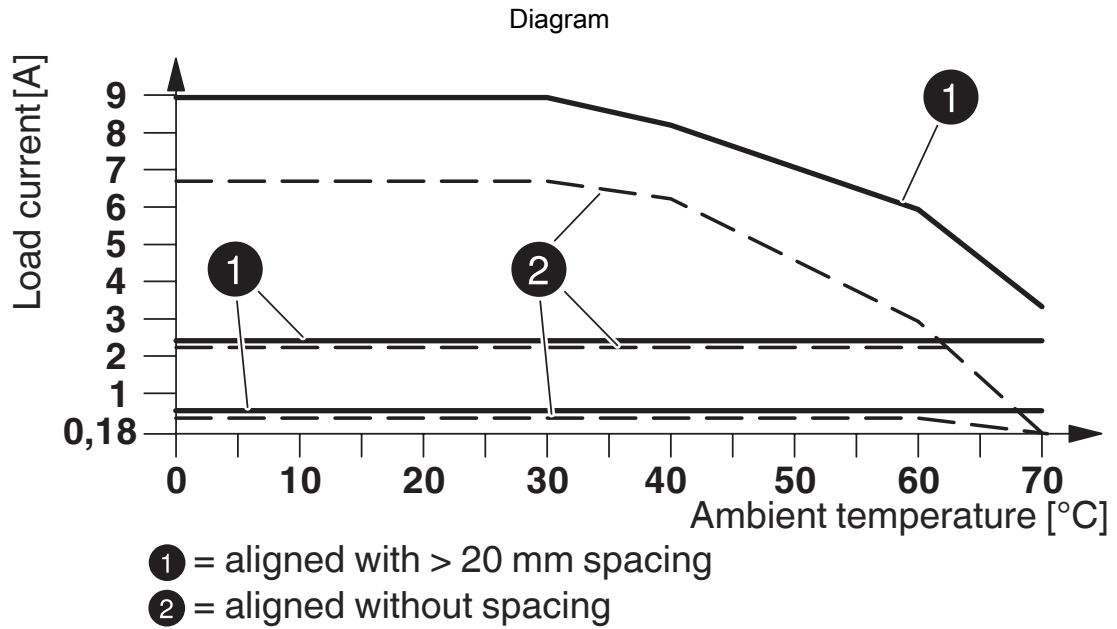
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Mounting position

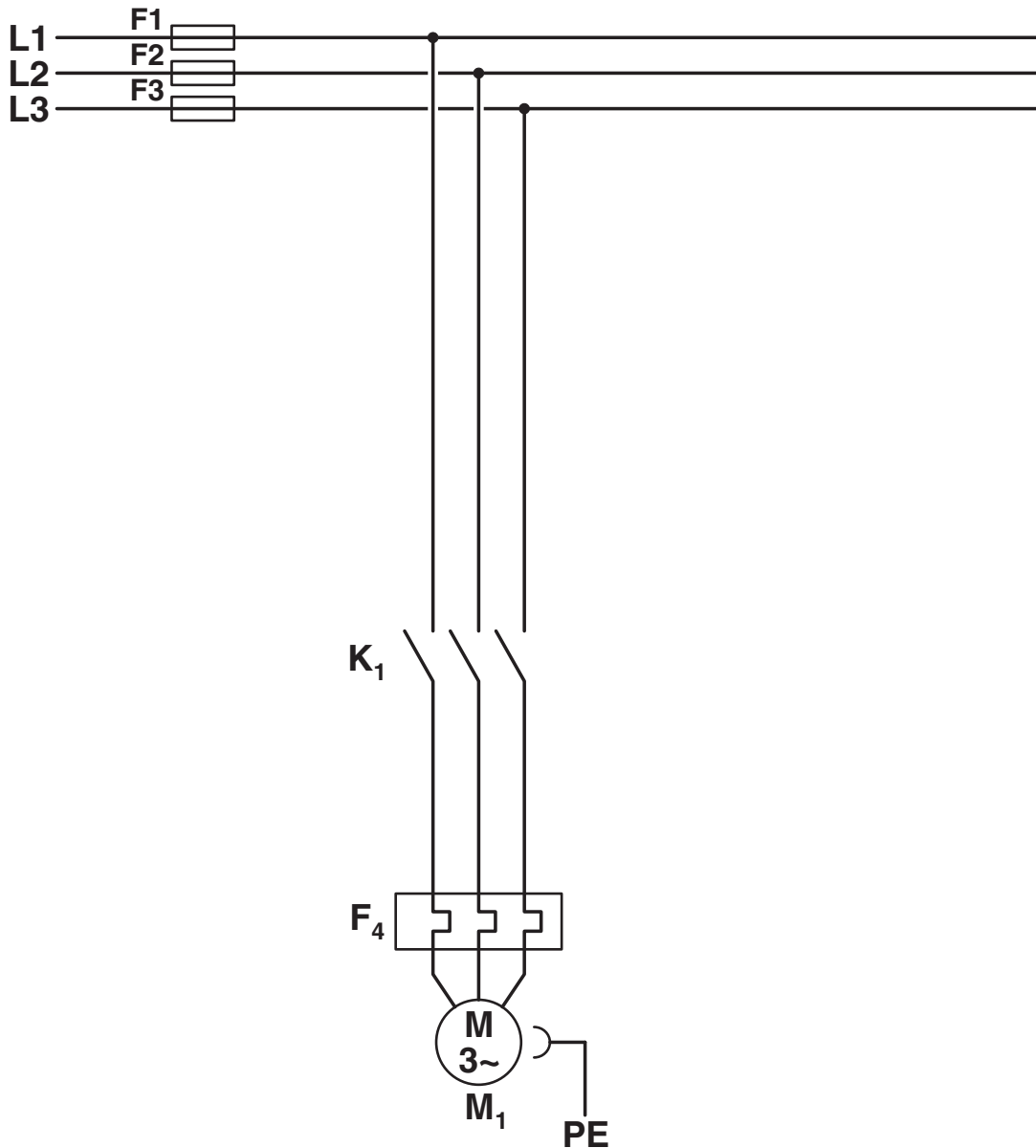
vertical (horizontal DIN rail, motor output below)

Drawings



Derating diagram

Circuit diagram



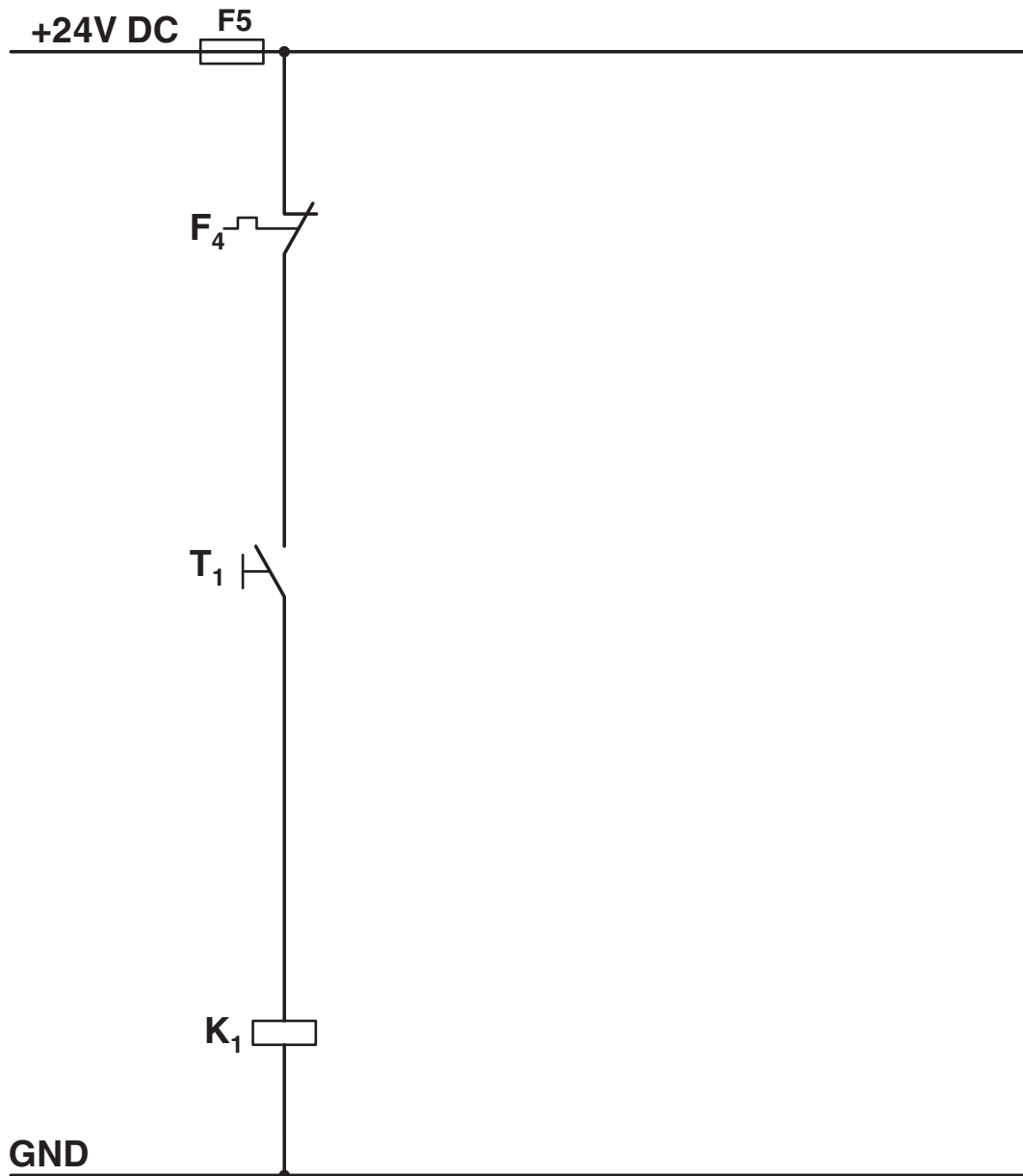
## Conventional structure

Main current path reversing contactor

K1 = Reversing contactor

F4 = Motor protection relay

Circuit diagram



**Conventional structure**

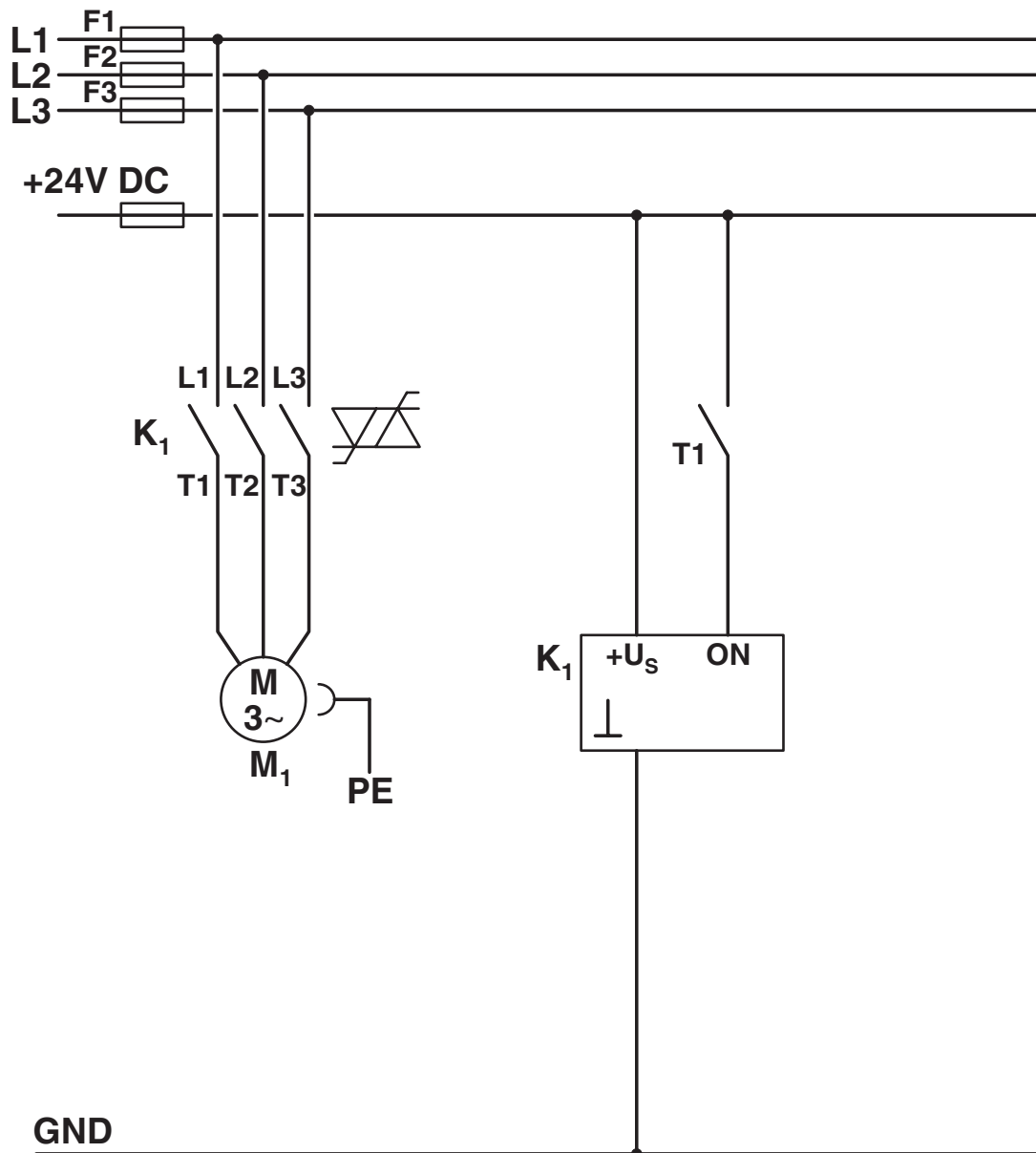
Control current path contactor

K1 = Right contactor

T1 = Right

F4 = Motor protection relay

Circuit diagram

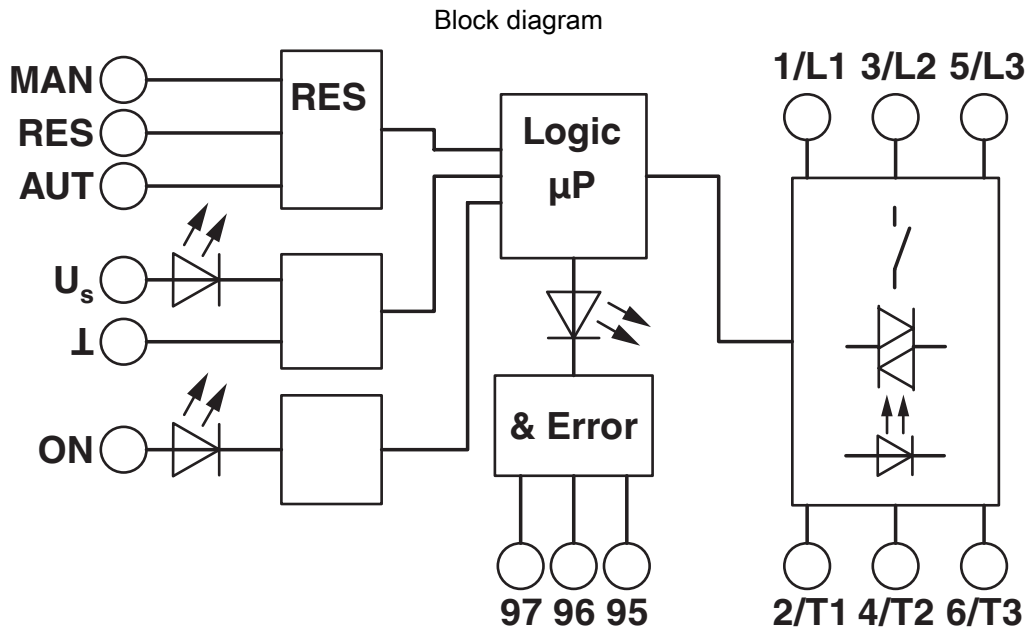


## Structure with CONTACTRON

Main and control current path for '2 in 1' hybrid motor starter

K1 = '2 in 1' hybrid motor starter

T1 = Right



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## Approvals

To download certificates, visit the product detail page: <https://www.phoenixcontact.com/us/products/2900545>



**IECEE CB Scheme**

Approval ID: DE1-55728



**EAC**

Approval ID: RU\*C-DE.\*08.B.00520\*



**UL Listed**

Approval ID: FILE E 323771



**CCC**

Approval ID: 2016010304871315



**cUL Listed**

Approval ID: FILE E 323771



**cUL Listed**

Approval ID: E228652



**UL Listed**

Approval ID: E228652



**CCC**

Approval ID: 2024010304672817

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## Classifications

### ECLASS

|             |          |
|-------------|----------|
| ECLASS-13.0 | 27370905 |
| ECLASS-15.0 | 27370905 |

### ETIM

|           |          |
|-----------|----------|
| ETIM 10.0 | EC001037 |
|-----------|----------|

### UNSPSC

|             |          |
|-------------|----------|
| UNSPSC 21.0 | 25173900 |
|-------------|----------|

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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.) | 1-Methyl-2-pyrrolidone (NMP)(CAS: 872-50-4)                    |
|                                     | Lead(CAS: 7439-92-1)   |
|                                     | 2,2',6,6'-tetrabromo-4,4'-isopropylidenediphenol(CAS: 79-94-7) |
| SCIP                                | 185f2d54-5434-495c-807e-14d4a24e61d2                           |

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