

ELR H3-IES-PT- 24DC/500AC-9 - Hybrid motor starter



2903918

<https://www.phoenixcontact.com/us/products/2903918>

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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, emergency stop function to SIL 3/PL e, and push-in connection.

Your advantages

- 22.5 mm wide
- Safety level in accordance with IEC 61508-1: SIL 3, ISO 13849: PL e
- Reduction in wiring
- Space saving
- Long service life
- 3-phase loop bridges
- Adjustable current for bimetal function
- Low-wear switching

Commercial data

| | |
|--------------------------------------|---------------|
| Item number | 2903918 |
| Packing unit | 1 pc |
| Minimum order quantity | 1 pc |
| Sales key | C470 |
| Product key | DK7413 |
| GTIN | 4046356771412 |
| Weight per piece (including packing) | 287.2 g |
| Weight per piece (excluding packing) | 278.7 g |
| Customs tariff number | 85371098 |
| Country of origin | DE |

Technical data

Notes

| | |
|--------------------|---|
| Notes on operation | If this device is to be used in combination with the CrossPowerSystem power distribution board, the device mount for the 16 A fuse (order designation: EM-CPS-DA-22,5F/16A; order number: 1002668) is required in order to attach the hybrid motor starter to the power distribution board. |
|--------------------|---|

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

Output data

AC output

| | |
|---|---------------------------------|
| Note | 800 V semiconductor |
| 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 | Push-in connection |
| Stripping length | 10 mm |
| Conductor cross-section rigid | 0.2 mm ² ... 2.5 mm ² |
| Conductor cross-section flexible | 0.2 mm ² ... 2.5 mm ² |
| Conductor cross-section AWG | 24 ... 14 |

Load circuit

| | |
|----------------------------------|---|
| Connection method | Push-in connection |
| Stripping length | 10 mm |
| Conductor cross-section rigid | 0.2 mm ² ... 2.5 mm ² |
| Conductor cross-section flexible | 0.2 mm ² ... 2.5 mm ² |

| | |
|-----------------------------|-----------|
| Conductor cross-section AWG | 24 ... 14 |
|-----------------------------|-----------|

Signaling

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

Dimensions

| | |
|--------|----------|
| Width | 22.5 mm |
| Height | 107.5 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

UKCA

| | |
|-------------|----------------|
| Certificate | UKCA-compliant |
|-------------|----------------|

ATEX

| | |
|----------------|--|
| Identification | ⊕ II (2) G [Ex e] [Ex d] [Ex px] ⊕ II (2) D [Ex t] [Ex p] |
| Certificate | PTB 07 ATEX 3145 |

UL approval

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

Safety Integrity Level (SIL, IEC 61508)

| | |
|----------------|---------------|
| Identification | ≤ 3 |
| Note | Safe shutdown |

Safety Integrity Level (SIL, IEC 61508)

| | |
|----------------|------------------|
| Identification | 2 |
| Note | Motor protection |

Performance Level (ISO 13849)

| | |
|----------------|---------------|
| Identification | ≤ e |
| Note | Safe shutdown |

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Category (ISO 13849)

| | |
|----------------|---------------|
| Identification | ≤ 3 |
| Note | Safe shutdown |

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 |

Standards and regulations

Standards/regulations

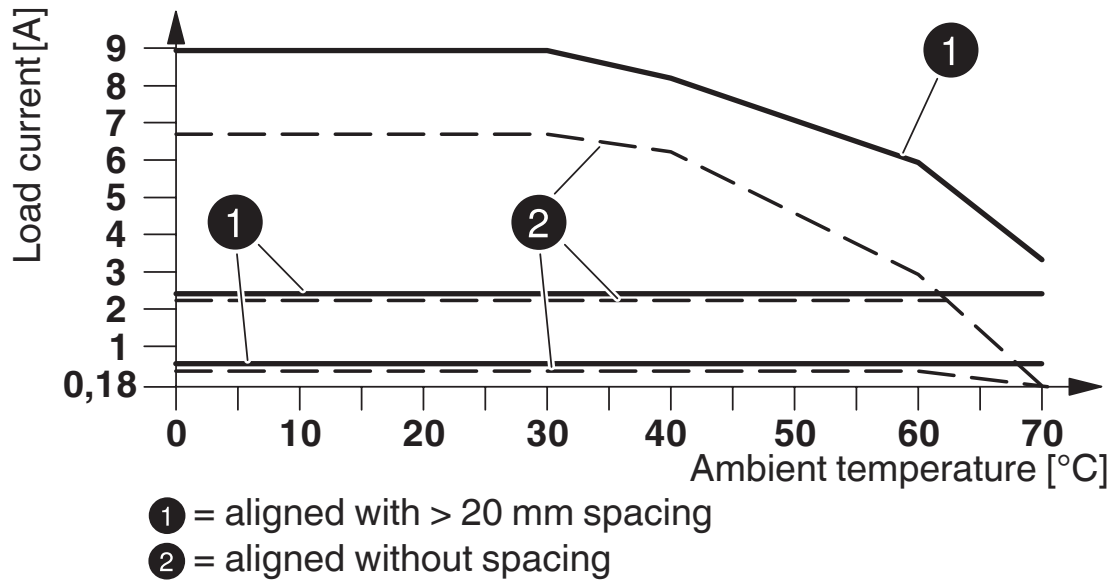
| | |
|-----------------------|---------------|
| Standards/regulations | IEC 60947-1 |
| | IEC 60947-4-2 |
| | IEC 61508 |
| | ISO 13849 |

Mounting

| | |
|-------------------|--|
| Mounting type | DIN rail mounting |
| Assembly note | alignable, for spacing see derating |
| Mounting position | vertical (horizontal DIN rail, motor output below) |

Drawings

Diagram



Derating diagram

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Circuit diagram



Conventional structure

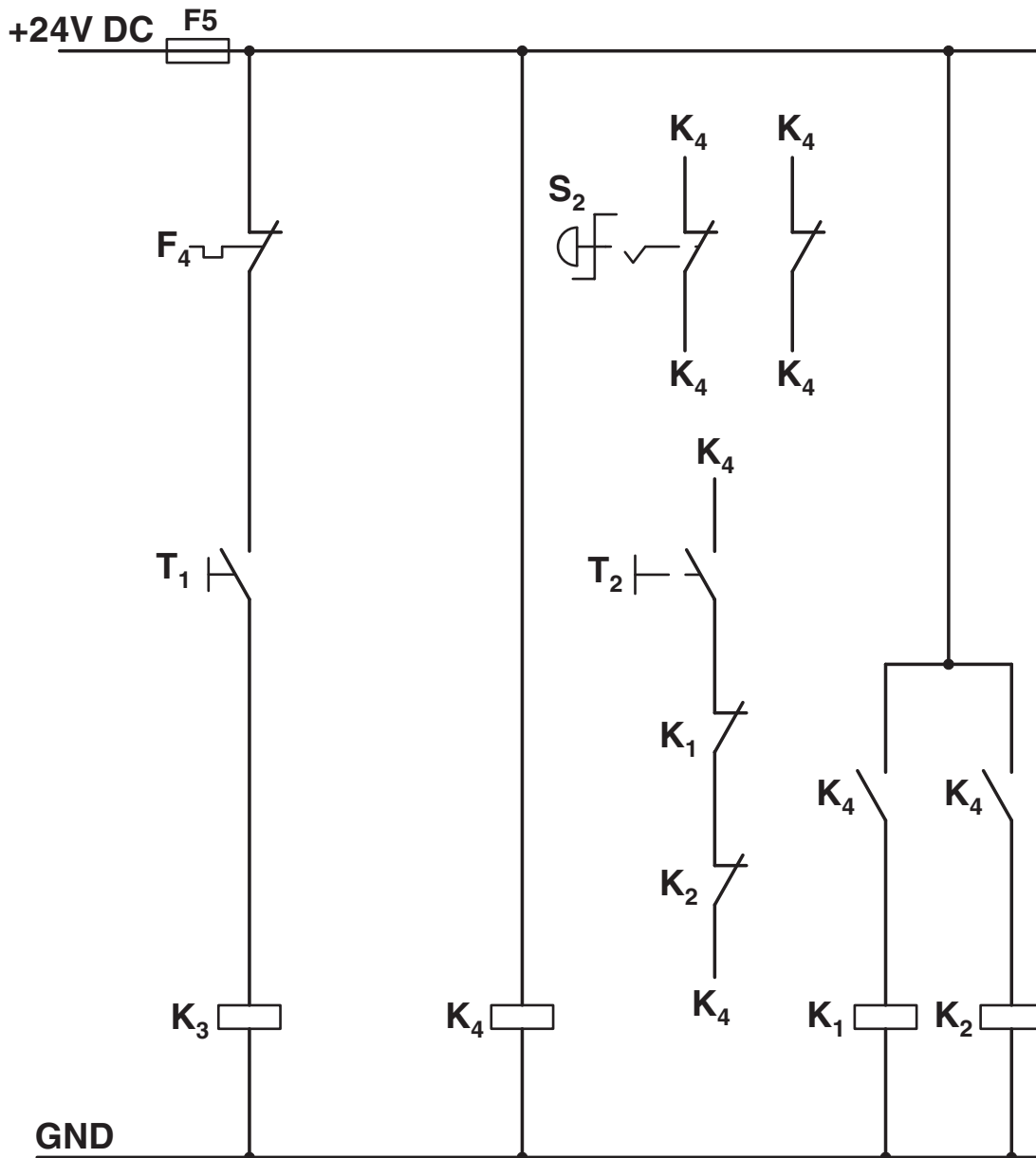
Main current path for contactor according to category 3

K1 + K2 = Emergency stop contactor

K3 = Right contactor

F4 = Motor protection relay

Circuit diagram



Conventional structure

Control current path for contactor according to category 3

K1 + K2 = Emergency stop contactor

K3 = Right contactor

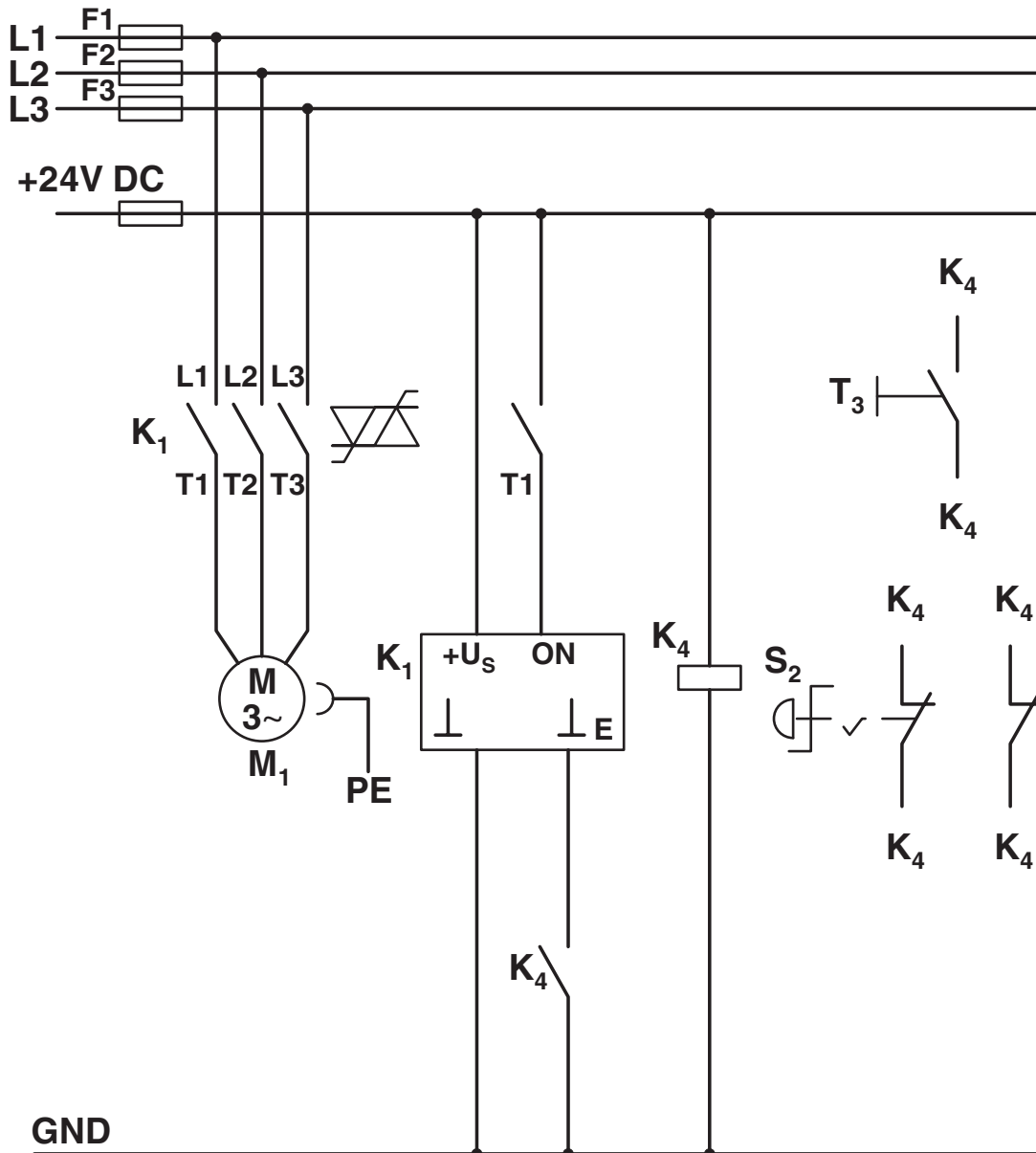
K4 = PSR SCP-24DC.../safety relay

T1 = Right, T3 = Reset

S2 = Emergency stop

F4 = Motor protection relay

Circuit diagram



Structure with CONTACTRON

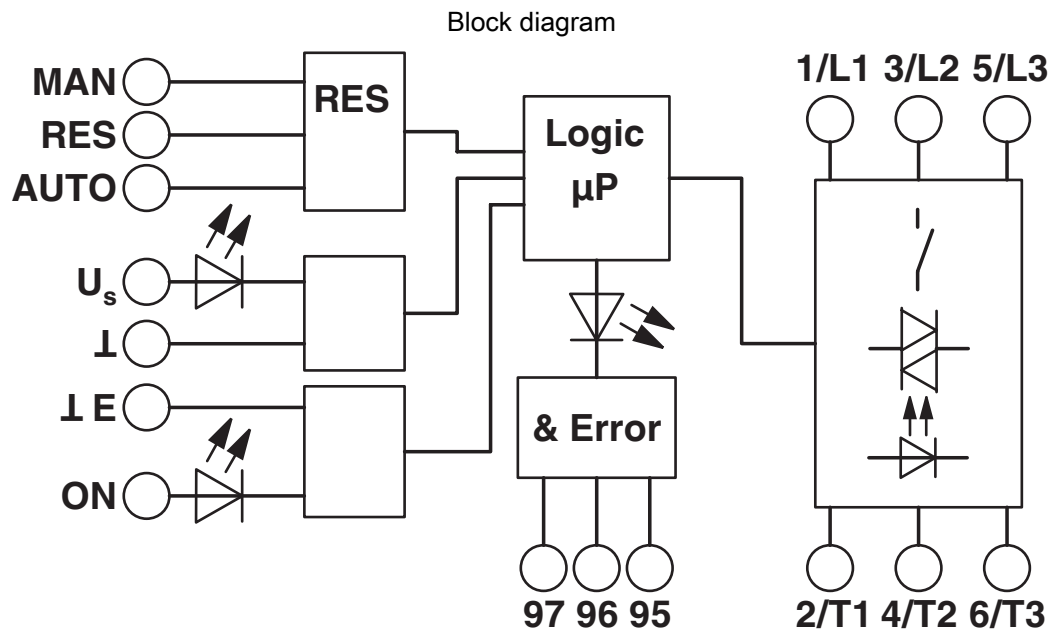
Main and control current path for '3 in 1' hybrid motor starter according to category 3

K1 = '3 in 1' hybrid motor starter

K4 = PSR SCP-24DC.../safety relay

T1 = Right, T3 = Reset

S2 = Emergency stop



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Approvals

To download certificates, visit the product detail page: <https://www.phoenixcontact.com/us/products/2903918>



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



ATEX
Approval ID: PTB 07 ATEX 3145

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Classifications

ECLASS

| | |
|-------------------|----------|
| ECLASS-13.0 | 27370905 |
| ECLASS-15.0 | 27370905 |
| ECLASS-15.0 ASSET | 27250101 |

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.) | Lead(CAS: 7439-92-1) |
| SCIP | 3701e030-5e8c-47c0-bf72-0ce349c47780 |

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