

ELR H5-IES-PT- 24DC/500AC-3-P - Hybrid motor starter



2909556

<https://www.phoenixcontact.com/us/products/2909556>

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Hybrid motor starter as an alternative to a conventional reversing contactor. Reverses 3~ AC motors up to 3 A, provides motor protection, ATEX, and emergency stop up to SIL 3. Group shut-down, supply, and relay extension possible via DIN rail connector.

Product description

The modular 3-phase hybrid motor starter with reversing function and current monitoring provides the following functions: - Forward running - Reverse running - Motor overload protection (EU examination certificate in accordance with ATEX Directive 2014/34/EU) - Emergency stop to performance level PLe (TÜV certified) Additional advantages are provided by using the DIN rail connector adapter (Item No. 2203861): - Emergency stop of the enable signal is also possible via the DIN rail connector, e.g. via a safety relay (PSR DC38...) - Power can also be supplied via the DIN rail connector by a system power supply (e. g., QUINT4-SYS...) or via the PCB connector IMC 1,5/ 5-ST-3,81, Item No. 1857919 - Optional relay module (e. g., EM-2RSC/21AU-R/L-P, Item No. 2908701) provides additional status information Thanks to the internal interlocking circuit and load wiring, wiring expense is reduced to a minimum.

Commercial data

| | |
|--------------------------------------|---------------|
| Item number | 2909556 |
| Packing unit | 1 pc |
| Minimum order quantity | 1 pc |
| Sales key | C470 |
| Product key | DK7472 |
| GTIN | 4055626406060 |
| Weight per piece (including packing) | 316.9 g |
| Weight per piece (excluding packing) | 306 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 | Reversing starter |
| Switching frequency | ≤ 2 Hz (Load-dependent) |
| Switching frequency | ≤ 2 Hz (Load-dependent) |
| Maximum power dissipation | 4.1 W |
| Minimum power dissipation | 0.88 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 | 60 mA |
| Protective circuit | Surge protection |
| | Reverse polarity protection |

Insulation characteristics

| | |
|--|--|
| Rated insulation voltage | 550 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) |
| 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 | > 33 A |
| Response time | < 0.5 s |

Input data

Control

| | |
|-------------------------------|---|
| Input name | Control input: right/left and enable input |
| Note | The enable input is compatible with signals with blanking (semiconductor output signals with test pulse with max. 3 ms duration), unblanking pulses of max. 4 ms are tolerated without adversely affecting the safety function. |
| Rated actuating voltage U_C | 24 V DC |

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| | |
|-------------------------------|-------------------------------|
| Triggering voltage range | 19.2 V DC ... 30 V DC |
| Rated actuating current I_C | 7 mA |
| 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

| | |
|---|----------------------------|
| Rated operating voltage U_e | 500 V AC |
| Operating voltage range | 42 V AC ... 550 V AC |
| Rated operating current I_e | 3 A (AC-51) |
| | 3 A (AC-53a) |
| Mains frequency | 50/60 Hz |
| Load current range | 180 mA ... 3 A |
| Trigger characteristic in acc. with IEC 60947-4-2 | Class 10 |
| Cooling time | 20 min (for auto reset) |
| Leakage current | 0 mA |
| Protective circuit | Surge protection; Varistor |

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 | 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 |

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| | |
|------------------|---------|
| 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

ATEX

| | |
|----------------|--|
| Identification | Ⓜ I I (2) G [Ex db] [Ex eb] [Ex pxb] Ⓜ II (2) D [Ex tb] [Ex pb] |
| Certificate | PTB 18 ATEX 3004 |

UL approval

| | |
|-------------|------------------------------|
| Certificate | NLDX.E228652 NRNT.E172140 |
|-------------|------------------------------|

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 |

Category (ISO 13849)

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

UL data

| | |
|------|--|
| SCCR | 100 kA (480 V AC (fuse: 30 A class CC/30 A class J (high fault))) 5 kA (480 V AC (fuse: 20 A RK5 (standard fault))) |
|------|--|

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| | |
|---------------------------------|---|
| FLA | 3 A (480 V AC) |
| Group installation | 20 A (class RK5, SCCR 5kA (480 V AC), #24 - 14 AWG max. solid and stranded) |
| | 30 A (class CC or J, SCCR 100kA (480 V AC), #24 - 14 AWG max, solid and stranded) |
| Category code | NLDX / NRNT |
| Horsepower ratings | 0.5 hp (208 V AC) |
| | 0.5 hp (230 V AC) |
| | 0.5 hp (240 V AC) |
| | 1.5 hp (480 V AC) |
| Ambient temperature (operation) | -25 °C ... 55 °C |

Standards and regulations

Standards/regulations

| | |
|-----------------------|--------------|
| Standards/regulations | EN 60947-1 |
| | EN 60947-4-2 |
| | EN 50495 |
| | EN ISO 13849 |
| | IEC 62061 |
| | IEC 61508 |

Mounting

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

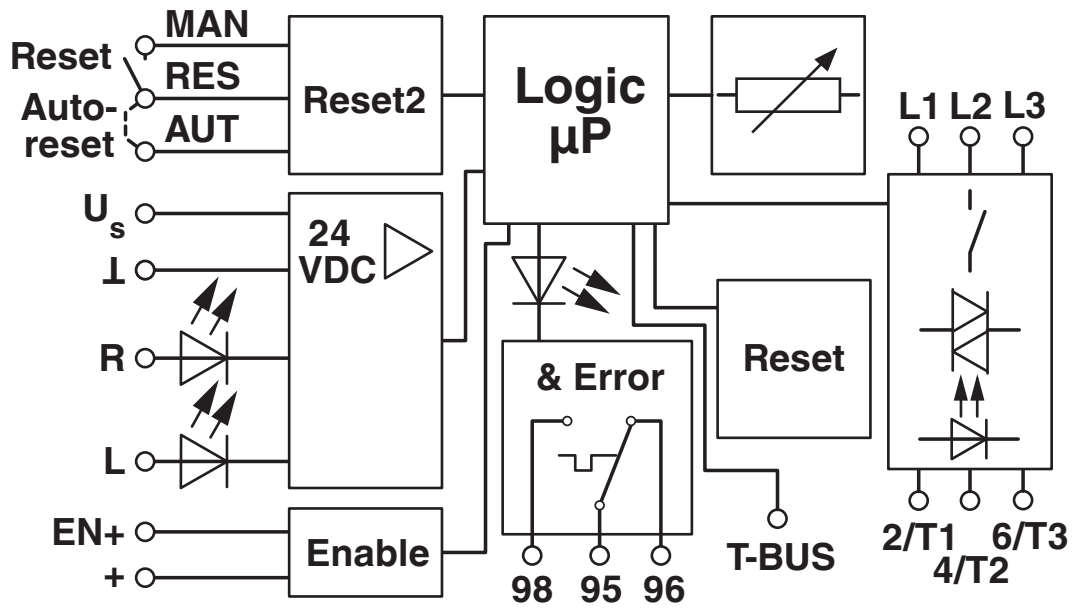
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Drawings

Block diagram



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Approvals

To download certificates, visit the product detail page: <https://www.phoenixcontact.com/us/products/2909556>



IECEE CB Scheme

Approval ID: CB-DE1-60807-A1



EAC

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



UL Listed

Approval ID: FILE E 172140



cUL Listed

Approval ID: FILE E 172140



cUL Listed

Approval ID: E228652



UL Listed

Approval ID: E228652



VDE Zeichengenehmigung

Approval ID: 40054426



CCC

Approval ID: 2024010304672814

DNV

Approval ID: TAA00002HK



ATEX

Approval ID: PTB18ATEX3004-A0_en

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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) |
| | 2,2',6,6'-tetrabromo-4,4'-isopropylidenediphenol(CAS: 79-94-7) |
| SCIP | 41a32909-927b-4322-bbe1-829bbaf6f71d |

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