

Hybrid motor starter - ELR H5-IES-PT- 24DC/500AC-9 - 2903906

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Hybrid motor starter for reversing 3~ AC motors up to 500 V AC and 9 A output current, with 24 V AC control voltage, adjustable overload shutdown and emergency stop function to SIL 3/PL e and push-in connection

Why buy this product

- 22.5 mm wide
- Safety level according to IEC 61508-1: SIL 3, ISO 13849: PL e
- Reduction in wiring
- Long service life
- Space saving

Key Commercial Data

| | |
|--------------------------------------|---------------------------------------------------------------------------------------------------------|
| Packing unit | 1 STK |
| GTIN |  4 046356 771290 |
| GTIN | 4046356771290 |
| Weight per Piece (excluding packing) | 273.600 g |
| Custom tariff number | 85371099 |
| Country of origin | Germany |

Technical data

Dimensions

| | |
|--------|----------|
| Width | 22.5 mm |
| Height | 99 mm |
| Depth | 114.5 mm |

Ambient conditions

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

Device supply

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Technical data

Device 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 | Reverse polarity protection |
| | Surge protection |

Input data

| | |
|-------------------------------|-------------------------------|
| Input name | Control input right/left |
| Rated actuating voltage U_c | 24 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) |
| Protective circuit | Reverse polarity protection |
| Typical turn-off time | < 30 ms |

Output data load output

| | |
|---------------------------------------------------|---------------------------------|
| Output name | AC output |
| Rated operating voltage U_e | 500 V AC |
| Operating voltage range | 42 V AC ... 550 V AC |
| Mains frequency | 50 Hz |
| | 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) |
| Rated operating current at AC-51 | 9 A |
| Rated operating current at AC-53a | 6.5 A |
| Leakage current | 0 mA |
| Protective circuit | Surge protection |

Output data reply output

| | |
|-----------------------------------------------|------------------------------------------------------------|
| Output name | Acknowledge output |
| Note | Confirmation: floating change-over contact, signal contact |
| Contact type | 1 PDT |
| Switching capacity according to IEC 60947-5-1 | 3 A (230 V, AC15) |
| | 2 A (24 V, DC13) |

Overspeed tripping

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

General

| | |
|---------------------|------------------------------|
| Switching frequency | \leq 2 Hz (Load-dependent) |
|---------------------|------------------------------|

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Technical data

General

| | |
|---------------------------|----------------------------------------------------|
| Mounting position | vertical (horizontal DIN rail, motor output below) |
| Assembly instructions | alignable, for spacing see derating |
| Operating mode | 100% operating factor |
| Maximum power dissipation | 7 W |
| Minimum power dissipation | 0.88 W |
| Operating voltage display | Green LED |
| Status display | Yellow LED |
| Indication | Red LED |

Connection data, input side

| | |
|----------------------------------|---------------------------------------------|
| Connection name | Control circuits |
| Connection method | Push-in connection |
| Stripping length | 10 mm |
| Conductor cross section solid | 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 |

Connection data, output side

| | |
|----------------------------------|---------------------------------------------|
| Connection name | Load circuit |
| Connection method | Push-in connection |
| Stripping length | 10 mm |
| Conductor cross section solid | 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 |

Insulation characteristics

| | |
|--------------------------|----------------------------------------------------------------------------------------------------------------------------|
| Rated insulation voltage | 500 V |
| Rated surge voltage | 6 kV |
| Overvoltage category | III |
| Degree of pollution | 2 |
| Designation | Insulation characteristics between the control input and control supply voltage, and auxiliary circuit to the main circuit |
| Insulation | Safe isolation (IEC 60947-1/EN 50178) at operating voltage ≤ 300 V AC |
| | Basic isolation (IEC 60947-1) at operating voltage 300 ... 500 V AC |
| | Safe isolation (EN 50178) at operating voltage 300 ... 500 V AC |
| Designation | Isolation characteristics between the control input and control supply voltage to auxiliary circuit |
| Insulation | Safe isolation (IEC 60947-1) in the auxiliary circuit ≤ 300 V AC |
| | Safe isolation (EN 50178) in the auxiliary circuit ≤ 300 V AC |

Approvals/conformities

| | |
|-----------------------------------------------|----------------------|
| Safety Integrity Level according to IEC 61508 | ≤ 3 (Safe shutdown) |
| | 2 (Motor protection) |
| Category acc. to EN ISO 13849 | 3 (Safe shutdown) |

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Technical data

Approvals/conformities

| | |
|------------------------------------------|----------------------------------|
| Performance level according to ISO 13849 | ≤ e (Safe shutdown) |
| ATEX | # II (2) G [Ex e] [Ex d] [Ex px] |
| | # II (2) D [Ex t] [Ex p] |
| EU-type examination certificate | PTB 07 ATEX 3145 |
| UL 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 |

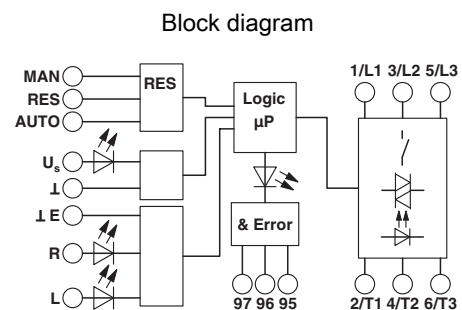
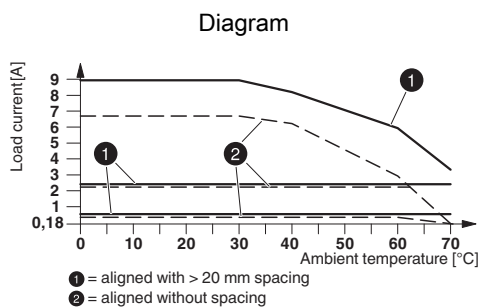
Standards and Regulations

| | |
|-----------------------|----------------------------------|
| Designation | Standards/regulations |
| Standards/regulations | IEC 60947-1 |
| | IEC 60947-4-2 |
| | IEC 61508 |
| | ISO 13849 |
| ATEX | # II (2) G [Ex e] [Ex d] [Ex px] |
| | # II (2) D [Ex t] [Ex p] |

Environmental Product Compliance

| | |
|------------|-----------------------------------------------------------------------------------------------------|
| China RoHS | Environmentally Friendly Use Period = 50 |
| | For details about hazardous substances go to tab "Downloads", Category "Manufacturer's declaration" |

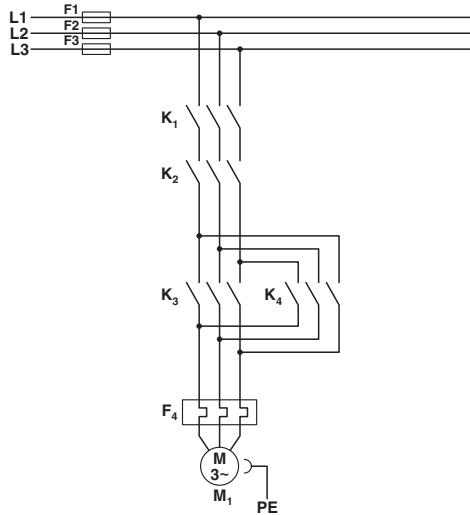
Drawings



Derating diagram

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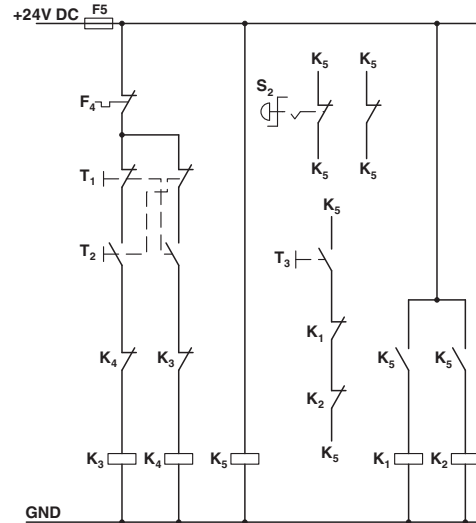
Circuit diagram



Conventional structure
Main current path for reversing contactor according to category 3

- K1 + K2 = Emergency stop contactor
- K3 = Left contactor
- K4 = Right contactor
- F4 = Motor protection relay

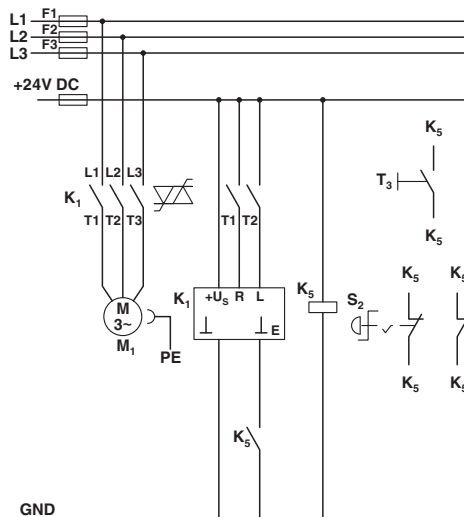
Circuit diagram



Conventional structure
Control current path reversing contactor according to category 3

- K1 + K2 = Emergency stop contactor
- K3 = Left contactor
- K4 = Right contactor
- K5 = PSR SCP-24DC.../Safety relay
- T1 = Right, T2 = Left, T3 = Reset
- S2 = Emergency stop
- F4 = Motor protection relay

Circuit diagram



Structure with CONTACTRON
Main and control current path for '4 in 1' hybrid motor starter with reversing function according to category 3
K1 = '4 in 1' hybrid motor starter with reversing function

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K5 = PSR SCP-24DC.../Safety relay

T1 = Right, T2 = Left, T3 = Reset

S2 = Emergency stop

Classifications

eCl@ss

| | |
|------------|----------|
| eCl@ss 5.0 | 27024002 |
| eCl@ss 5.1 | 27024002 |
| eCl@ss 6.0 | 27024002 |
| eCl@ss 7.0 | 27024002 |
| eCl@ss 8.0 | 27024002 |
| eCl@ss 9.0 | 27024002 |

ETIM

| | |
|----------|----------|
| ETIM 2.0 | EC001037 |
| ETIM 3.0 | EC001037 |
| ETIM 4.0 | EC001037 |
| ETIM 5.0 | EC001037 |
| ETIM 6.0 | EC001037 |

UNSPSC

| | |
|---------------|----------|
| UNSPSC 6.01 | 30211915 |
| UNSPSC 7.0901 | 39121514 |
| UNSPSC 11 | 39121514 |
| UNSPSC 12.01 | 39121514 |
| UNSPSC 13.2 | 25173902 |

Approvals

Approvals

Approvals

UL Listed / cUL Listed / IECCEB Scheme / UL Listed / cUL Listed / EAC / EAC / cULus Listed

Ex Approvals

ATEX

Approval details

| | | | |
|-----------|--|-------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| UL Listed | | http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm | FILE E 323771 |
|-----------|--|-------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|

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Approvals

| | | | |
|-----------------|--|-------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|
| cUL Listed | | http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm | FILE E 228652 |
| IECEE CB Scheme | | http://www.iecee.org/ | DE1-55728 |
| UL Listed | | http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm | FILE E 228652 |
| cUL Listed | | http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm | FILE E 323771 |
| EAC | | | EAC-Zulassung |
| EAC | | | 7500651.22.01.00245 |
| cULus Listed | | | |

Accessories

Accessories

Cover

Covering hood - BRIDGE COVER - 2906240



The BRIDGE COVER covering hood is used to cover unused plugs on the CONTACTRON bridge that may subsequently be used to extend the system. The hood can be used with the screw and Push-in version of the bridge.

Loop bridge

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Accessories

Jumper - BRIDGE-PT 2 - 2904490



3-phase loop bridge for 2 CONTACTRON modules, with push-in connection and 22.5 mm housing width, connecting cable: 3 m, with ferrules included.

Jumper - BRIDGE-PT 3 - 2904491



3-phase loop bridge for 3 CONTACTRON modules, with push-in connection and 22.5 mm housing width, connecting cable: 3 m, with ferrules included.

Jumper - BRIDGE-PT 4 - 2904492



3-phase loop bridge for 4 CONTACTRON modules, with push-in connection and 22.5 mm housing width, connecting cable: 3 m, with ferrules included.

Jumper - BRIDGE-PT 5 - 2904493



3-phase loop bridge for 5 CONTACTRON modules, with push-in connection and 22.5 mm housing width, connecting cable: 3 m, with ferrules included.

Jumper - BRIDGE-PT 6 - 2904494



3-phase loop bridge for 6 CONTACTRON modules, with push-in connection and 22.5 mm housing width, connecting cable: 3 m, with ferrules included.

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Accessories

Jumper - BRIDGE-PT 7 - 2904495



3-phase loop bridge for 7 CONTACTRON modules, with push-in connection and 22.5 mm housing width, connecting cable: 3 m, with ferrules included.

Jumper - BRIDGE-PT 8 - 2904496



3-phase loop bridge for 8 CONTACTRON modules, with push-in connection and 22.5 mm housing width, connecting cable: 3 m, with ferrules included.

Jumper - BRIDGE-PT 9 - 2904497



3-phase loop bridge for 9 CONTACTRON modules, with push-in connection and 22.5 mm housing width, connecting cable: 3 m, with ferrules included.

Jumper - BRIDGE-PT 10 - 2904498



3-phase loop bridge for 10 CONTACTRON modules, with push-in connection and 22.5 mm housing width, connecting cable: 3 m, with ferrules included.
