

Hybrid motor starter - ELR W3- 24DC/500AC- 9I - 2297057

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"4 in 1" three-phase semiconductor reversing contactor with 24 V DC input, 9 A output current, emergency stop function, and adjustable overload switching.

Your advantages

- ✓ 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
- ✓ 3-phase loop bridges
- ✓ Adjustable current for bimetal function
- ✓ Low-wear switching



Key Commercial Data

| | |
|--------------|---------------|
| Packing unit | 1 pc |
| GTIN | |
| GTIN | 4046356170581 |

Technical data

Dimensions

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

Ambient conditions

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

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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 |
| Type of protection | Surge protection |
| | Reverse polarity protection |

Input data

| | |
|-------------------------------|-------------------------------|
| Input name | Control input right/left |
| 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 |
| Switching threshold | 9.6 V ("0" signal) |
| | 19.2 V ("1" signal) |
| Switching level | < 5 V DC (For EMERGENCY STOP) |
| Typical response time | < 35 ms |
| Typical turn-off time | < 40 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 |
| 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 |
| Residual voltage | < 0.5 V |
| Surge current | 100 A (t = 10 ms) |
| Type of protection | 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) |

General

| | |
|---------------------|--------------------------------|
| Motor starter type | Reversing starter |
| Switching frequency | ≤ 2 Hz (Load-dependent) |
| Mounting position | Vertical (horizontal DIN rail) |

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Technical data

General

| | |
|---------------------------|-------------------------------------|
| Mounting type | DIN rail mounting |
| Assembly instructions | Can be aligned with spacing = 20 mm |
| Operating mode | 100% operating factor |
| Maximum power dissipation | 14.6 W |
| Minimum power dissipation | 1.1 W |
| Operating voltage display | Green LED |
| Status display | Yellow LED |
| Indication | Red LED |

Connection data

| | |
|----------------------------------|---|
| Connection name | Control circuits |
| Connection method | Screw connection |
| Stripping length | 8 mm |
| Screw thread | M3 |
| 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 |
| Torque | 0.5 Nm ... 0.6 Nm |
| | 5 lb _f -in. ... 7 lb _f -in. |

Connection data 2

| | |
|----------------------------------|---|
| Connection name | Load circuit |
| Connection method | Screw connection |
| Stripping length | 8 mm |
| Screw thread | M3 |
| 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 |
| Torque | 0.5 Nm ... 0.6 Nm |
| | 5 lb _f -in. ... 7 lb _f -in. |

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 |

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Insulation characteristics

| | |
|------------|---|
| Insulation | Safe isolation (IEC 60947-1) in the auxiliary circuit \leq 300 V AC |
| | Safe isolation (EN 50178) in the auxiliary circuit \leq 300 V AC |

Standards and Regulations

| | |
|-----------------------|-----------------------|
| Designation | Standards/regulations |
| Standards/regulations | DIN EN 50178 |
| | EN 60947 |
| | IEC 61508 |
| | ISO 13849 |

Conformance/approvals

| | |
|-----------------|---|
| Designation | ATEX |
| Identification | # II (2) G [Ex e] [Ex d] [Ex px] |
| | # II (2) D [Ex t] [Ex p] |
| Certificate | PTB 07 ATEX 3145 |
| Designation | UL approval |
| Certificate | NLDX.E228652 |
| Designation | Safety Integrity Level (SIL, IEC 61508) |
| Identification | \leq 3 |
| Additional text | Safe shutdown |
| Designation | Safety Integrity Level (SIL, IEC 61508) |
| Identification | 2 |
| Additional text | Motor protection |
| Designation | Performance Level (ISO 13849) |
| Identification | \leq e |
| Additional text | Safe shutdown |
| Designation | Category (ISO 13849) |
| Identification | \leq 3 |
| Additional text | 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 |

Environmental Product Compliance

| | |
|------------|--|
| REACH SVHC | Lead 7439-92-1 |
| China RoHS | Environmentally Friendly Use Period = 50 years |

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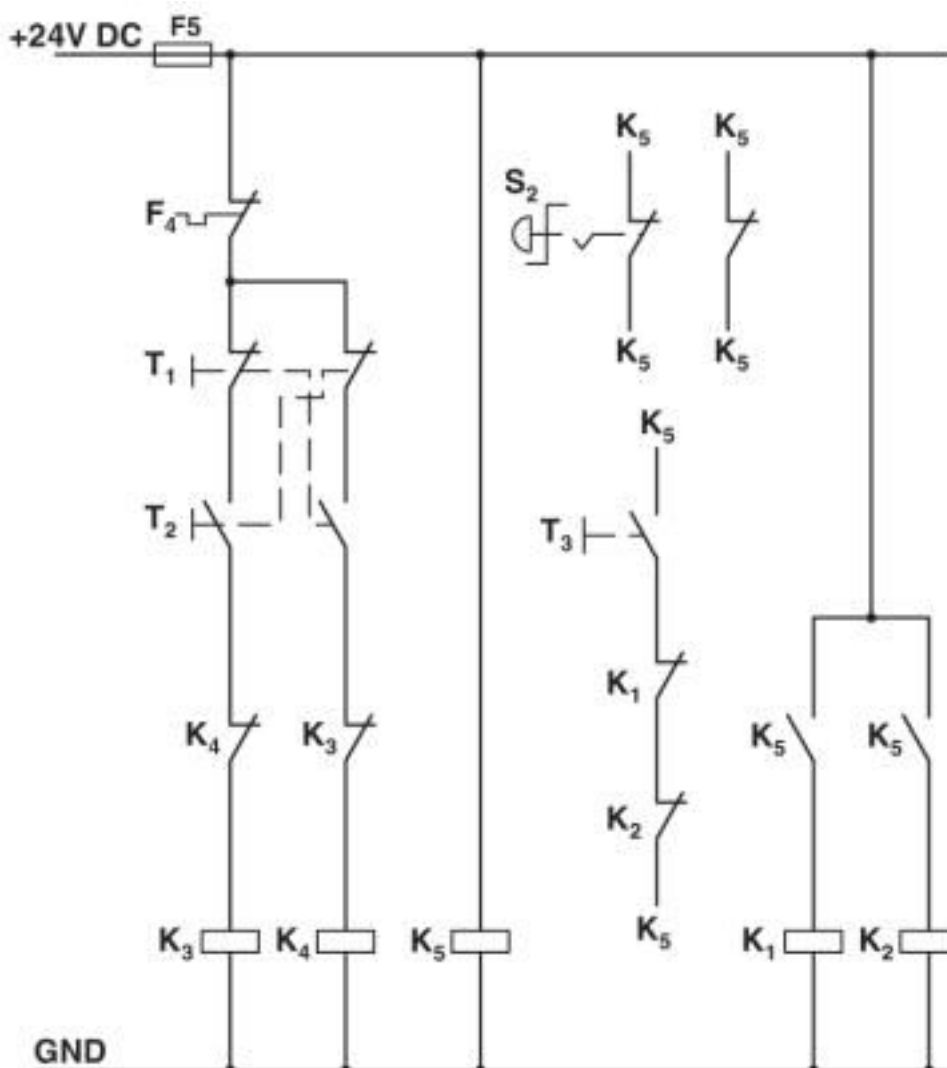
Technical data

Environmental Product Compliance

| | |
|--|---|
| | For details about hazardous substances go to tab "Downloads", Category "Manufacturer's declaration" |
|--|---|

Drawings

Circuit diagram



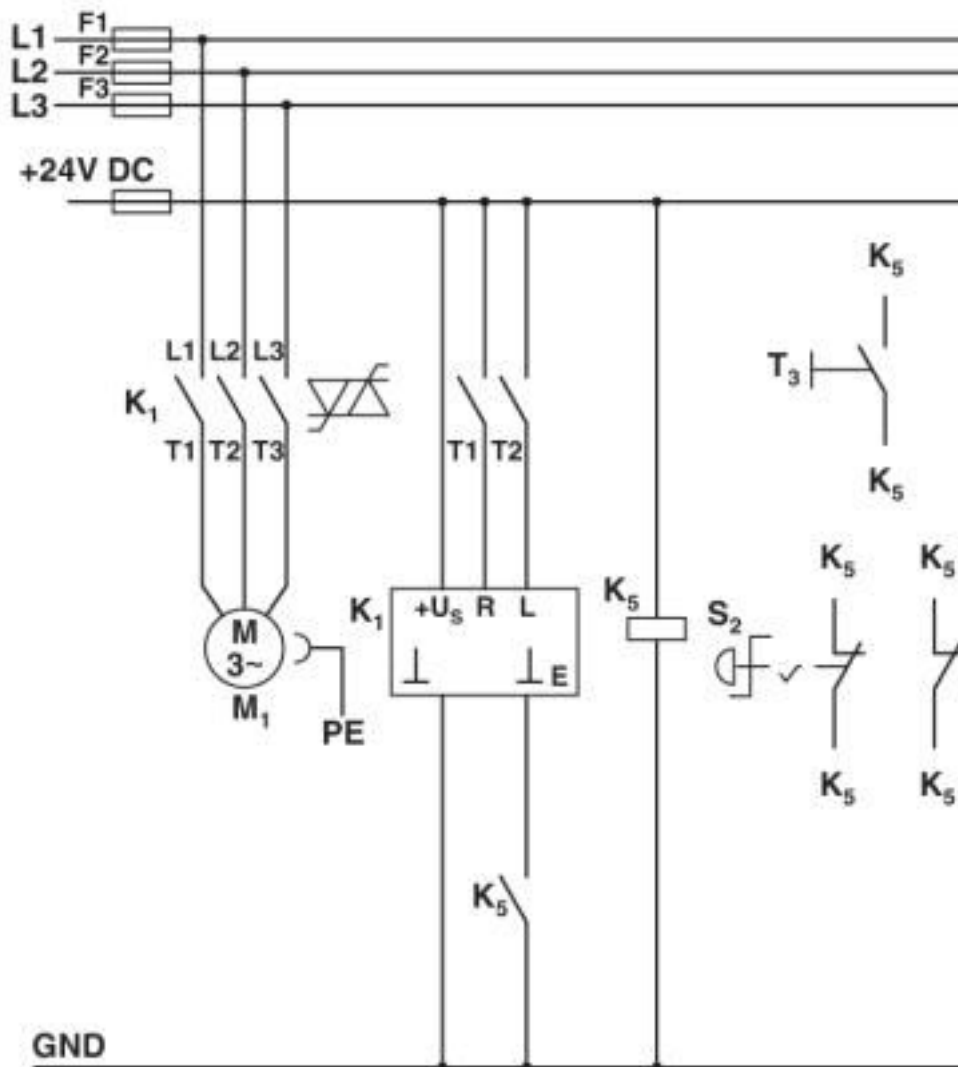
Conventional structure
Control current path reversing contactor according to category 3

- 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

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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

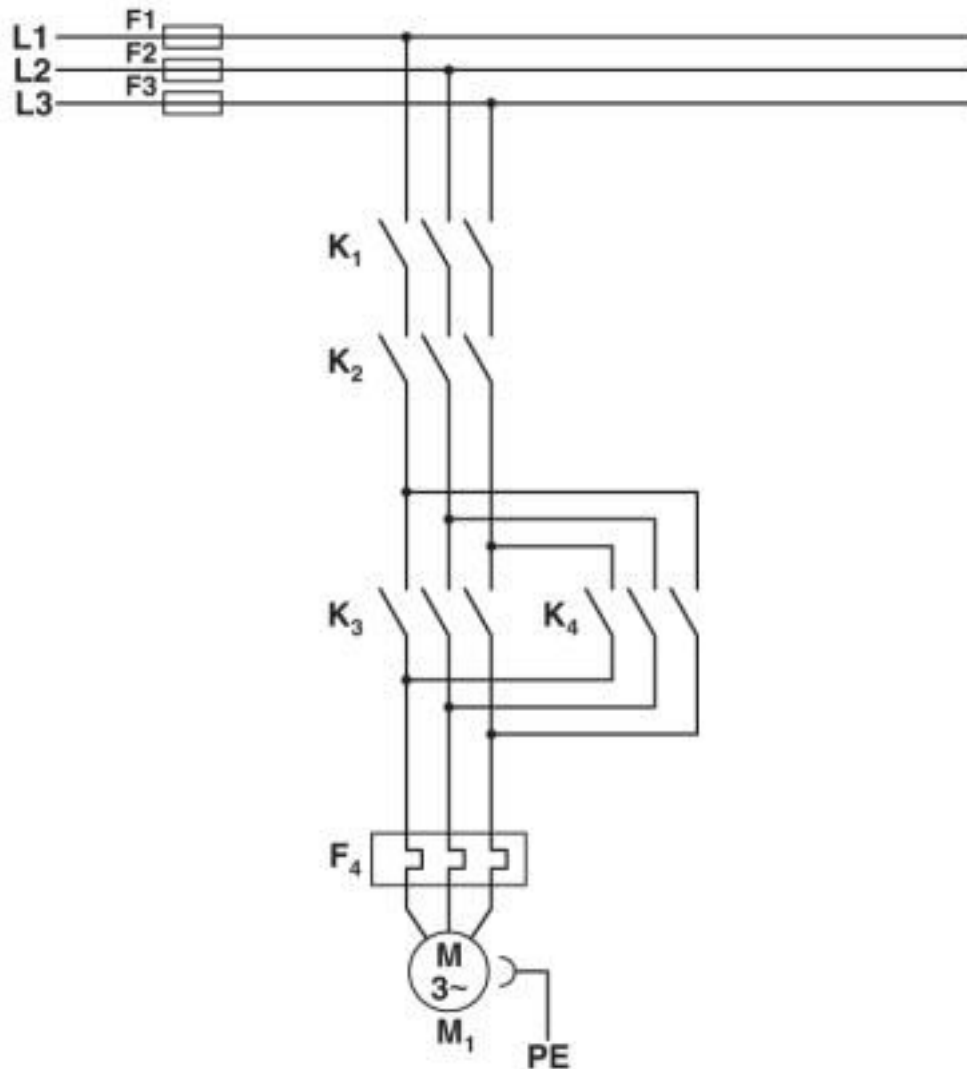
K5 = PSR SCP-24DC.../Safety relay

T1 = Right, T2 = Left, T3 = Reset

S2 = Emergency stop

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Circuit diagram



Conventional structure

Main current path for reversing contactor according to category 3

K1 + K2 = Emergency stop contactor

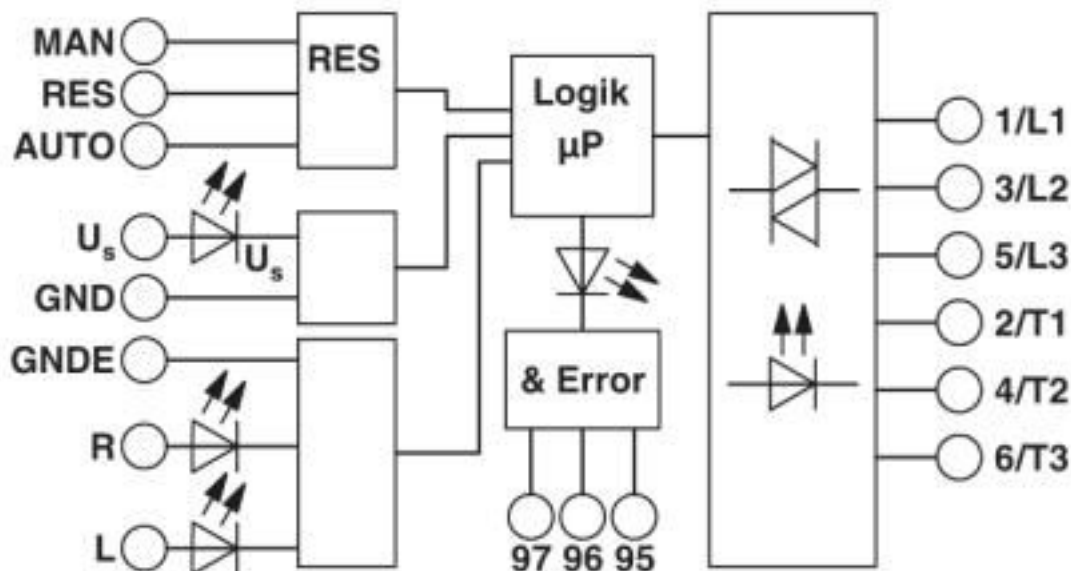
K3 = Left contactor

K4 = Right contactor

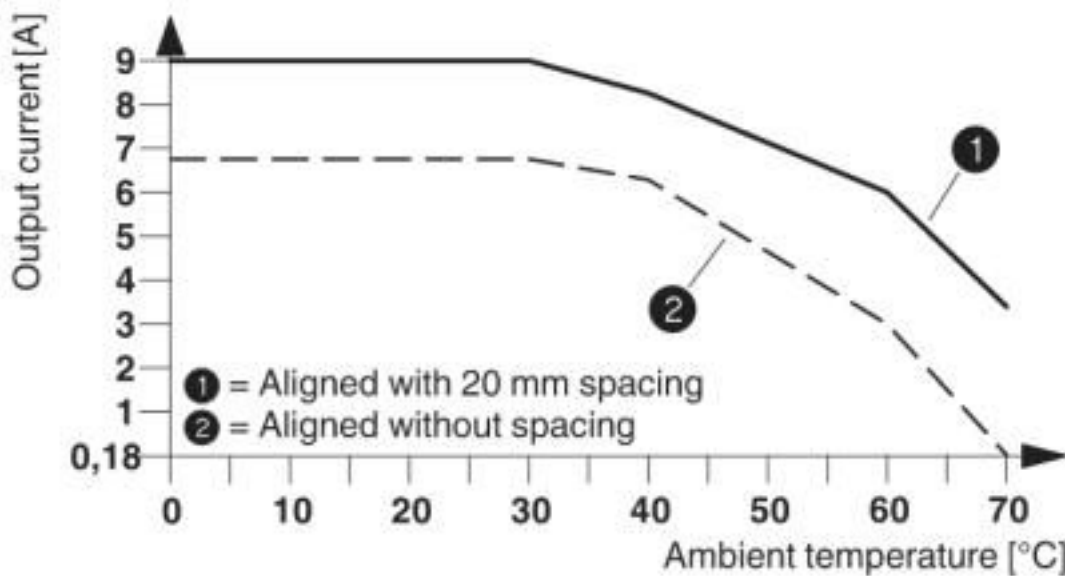
F4 = Motor protection relay

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Block diagram



Diagram



Derating diagram

Classifications

eCl@ss

| | |
|---------------|----------|
| eCl@ss 10.0.1 | 27370905 |
| eCl@ss 4.0 | 27021100 |
| eCl@ss 4.1 | 27021100 |
| eCl@ss 5.0 | 27024000 |

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Classifications

eCl@ss

| | |
|------------|----------|
| eCl@ss 5.1 | 27024000 |
| eCl@ss 6.0 | 27024000 |
| eCl@ss 7.0 | 27024002 |
| eCl@ss 8.0 | 27024002 |
| eCl@ss 9.0 | 27370905 |

ETIM

| | |
|----------|----------|
| ETIM 2.0 | EC001037 |
| ETIM 3.0 | EC001037 |
| ETIM 4.0 | EC001037 |
| ETIM 5.0 | EC001037 |
| ETIM 6.0 | EC001037 |
| ETIM 7.0 | EC001037 |

UNSPSC

| | |
|---------------|----------|
| UNSPSC 6.01 | 30211915 |
| UNSPSC 7.0901 | 39121514 |
| UNSPSC 11 | 39121514 |
| UNSPSC 12.01 | 39121514 |
| UNSPSC 13.2 | 25173902 |
| UNSPSC 18.0 | 25173902 |
| UNSPSC 19.0 | 25173902 |
| UNSPSC 20.0 | 25173902 |
| UNSPSC 21.0 | 25173902 |

Approvals

Approvals

Approvals

UL Listed / cUL Listed / GL / GL-SW / UL Listed / IEC CB Scheme / cUL Listed / CCC / EAC / GL

Ex Approvals

ATEX

Approval details

| | | | |
|-----------|---|---|---------------|
| UL Listed |  | http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm | FILE E 228652 |
|-----------|---|---|---------------|

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Approvals

| | | | |
|------------|--|---|---------------|
| cUL Listed | | http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm | FILE E 228652 |
|------------|--|---|---------------|

| | | | |
|----|--|---|-------------|
| GL | | https://approvalfinder.dnvgl.com/ | 54757-08 HH |
|----|--|---|-------------|

| | | | |
|-------|--|--|-------------|
| GL-SW | | | 54757-08 HH |
|-------|--|--|-------------|

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

| | | | |
|-----------------|--|---|-----------|
| IECEE CB Scheme | | http://www.iecee.org/ | DE1-55728 |
|-----------------|--|---|-----------|

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

| | | | |
|-----|--|--|------------------|
| CCC | | | 2016010304871315 |
|-----|--|--|------------------|

| | | | |
|-----|--|--|--------------------------|
| EAC | | | RU*C- DE.*08.B.00520* |
|-----|--|--|--------------------------|

| | | | |
|----|--|--|--|
| GL | | | |
|----|--|--|--|

Accessories

Accessories

Adapter

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Accessories

Adapter - EM-CPS-DA-22,5F/16A - 1002668



Device adapter with fuse holder for 16 A fuse (10x38/Class CC), CrossLink® interface and fixed DIN rail

Assembly adapter

Power distribution board - EM-CPS-225 - 1002634



Modular power distribution board with CrossLink® interface, 125 A, 3-pos., touch-proof and protection against polarity reversal, width: 225 mm

Power distribution board - EM-CPS-405 - 1002635



Modular power distribution board with CrossLink® interface, 125 A, 3-pos., touch-proof and protection against polarity reversal, width: 405 mm

Connection module - EM-CPS-TB3/63A - 1002633



Connection module with integrated spring-loaded terminals for cables from 1.5 to 16 mm², 3-pos., maximum 63 A

Bridge

Jumper - BRIDGE- 4-3M - 2901659



3-phase loop bridge for 4 CONTACTRON modules, with screw connection and 22.5 mm housing width, connecting cable: 3 m

Cover

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Accessories

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.

Device marking

Plastic label - US-EMLP (15X5) - 0828790



Plastic label, Card, white, unlabeled, can be labeled with: BLUEMARK ID COLOR, BLUEMARK ID, THERMOMARK PRIME, THERMOMARK CARD 2.0, THERMOMARK CARD, mounting type: adhesive, lettering field size: 15 x 5 mm, Number of individual labels: 189

Plastic label - UC-EMLP (15X5) - 0819301



Plastic label, Sheet, white, unlabeled, can be labeled with: BLUEMARK ID COLOR, BLUEMARK ID, BLUEMARK CLED, PLOTMARK, CMS-P1-PLOTTER, mounting type: adhesive, lettering field size: 15 x 5 mm, Number of individual labels: 10

Loop bridge

Jumper - BRIDGE- 2 - 2900746



3-phase loop bridge for 2 CONTACTRON modules, with screw connection and 22.5 mm housing width, connecting cable: 0.3 m, with ferrules.

Jumper - BRIDGE- 3 - 2900747



3-phase loop bridge for 3 CONTACTRON modules, with screw connection and 22.5 mm housing width, connecting cable: 0.3 m, with ferrules.

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Accessories

Jumper - BRIDGE- 4 - 2900748



3-phase loop bridge for 4 CONTACTRON modules, with screw connection and 22.5 mm housing width, connecting cable: 0.3 m, with ferrules.

Jumper - BRIDGE- 5 - 2900749



3-phase loop bridge for 5 CONTACTRON modules, with screw connection and 22.5 mm housing width, connecting cable: 0.3 m, with ferrules.

Jumper - BRIDGE- 6 - 2900750



3-phase loop bridge for 6 CONTACTRON modules, with screw connection and 22.5 mm housing width, connecting cable: 0.3 m, with ferrules.

Jumper - BRIDGE- 7 - 2900751



3-phase loop bridge for 7 CONTACTRON modules, with screw connection and 22.5 mm housing width, connecting cable: 0.3 m, with ferrules.

Jumper - BRIDGE- 8 - 2900752



3-phase loop bridge for 8 CONTACTRON modules, with screw connection and 22.5 mm housing width, connecting cable: 0.3 m, with ferrules.

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Accessories

Jumper - BRIDGE- 9 - 2900753



3-phase loop bridge for 9 CONTACTRON modules, with screw connection and 22.5 mm housing width, connecting cable: 0.3 m, with ferrules.

Jumper - BRIDGE-10 - 2900754



3-phase loop bridge for 10 CONTACTRON modules, with screw connection and 22.5 mm housing width, connecting cable: 0.3 m, with ferrules.

Jumper - BRIDGE- 2-3M - 2901543



3-phase loop bridge for 2 CONTACTRON modules, with screw connection and 22.5 mm housing width, connecting cable: 3 m

Jumper - BRIDGE- 3-3M - 2901656



3-phase loop bridge for 3 CONTACTRON modules, with screw connection and 22.5 mm housing width, connecting cable: 3 m

Jumper - BRIDGE- 5-3M - 2901545



3-phase loop bridge for 5 CONTACTRON modules, with screw connection and 22.5 mm housing width, connecting cable: 3 m

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Accessories

Jumper - BRIDGE- 6-3M - 2901697



3-phase loop bridge for 6 CONTACTRON modules, with screw connection and 22.5 mm housing width, connecting cable: 3 m

Jumper - BRIDGE- 7-3M - 2901698



3-phase loop bridge for 7 CONTACTRON modules, with screw connection and 22.5 mm housing width, connecting cable: 3 m

Jumper - BRIDGE- 8-3M - 2901700



3-phase loop bridge for 8 CONTACTRON modules, with screw connection and 22.5 mm housing width, connecting cable: 3 m

Jumper - BRIDGE- 9-3M - 2901701



3-phase loop bridge for 9 CONTACTRON modules, with screw connection and 22.5 mm housing width, connecting cable: 3 m

Jumper - BRIDGE-10-3M - 2901702



3-phase loop bridge for 10 CONTACTRON modules, with screw connection and 22.5 mm housing width, connecting cable: 3 m

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Accessories

Jumper - BRIDGE- 2-1M - 2901542



3-phase loop bridge for 2 CONTACTRON modules, with screw connection and 22.5 mm housing width, connecting cable: 1 m

Jumper - BRIDGE- 3-1M - 2901655



3-phase loop bridge for 3 CONTACTRON modules, with screw connection and 22.5 mm housing width, connecting cable: 1 m

Jumper - BRIDGE- 4-1M - 2901658



3-phase loop bridge for 4 CONTACTRON modules, with screw connection and 22.5 mm housing width, connecting cable: 1 m

Jumper - BRIDGE- 5-1M - 2901544



3-phase loop bridge for 5 CONTACTRON modules, with screw connection and 22.5 mm housing width, connecting cable: 1 m

Jumper - BRIDGE- 6-1M - 2901649



3-phase loop bridge for 6 CONTACTRON modules, with screw connection and 22.5 mm housing width, connecting cable: 1 m

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