# Hybrid motor starter - ELR H5-I-SC-24DC/500AC-9-SP - 2904678

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Hybrid motor starter for reversing 3~ AC motors up to 550 V AC, with 24 V DC input, 9 A output current, adjustable overload shutdown, and with no underload detection.

## Your advantages

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

RoHS

## Key Commercial Data

| | |
|---|---|
| Packing unit | 1 pc |
| GTIN | 4 046356 871792 |
| GTIN | 4046356871792 |
| Weight per Piece (excluding packing) | 217.180 g |
| Custom tariff number | 85371098 |
| Country of origin | Germany |

## 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 |

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## Technical data

### Ambient conditions

| | |
|---|---|
| Maximum altitude | ≤ 2000 m |
| Degree of protection | IP20 |

### 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) |
| Typical turn-off time | < 30 ms |
| Type of protection | Reverse polarity protection |

### 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 |
| Type of protection | Surge protection |

### Output data reply output

| | |
|---|---|
| Output name | Acknowledge output |
| Note | Confirmation: floating change-over contact, signal contact |
| 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

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## Technical data

### General

| | |
|---|---|
| Motor starter type | Reversing starter |
| Switching frequency | ≤ 2 Hz (Load-dependent) |
| Mounting position | vertical (horizontal DIN rail, motor output below) |
| Mounting type | DIN rail mounting |
| Assembly instructions | alignable, for spacing see derating |
| 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 mm² ... 2.5 mm² |
| Conductor cross section flexible | 0.2 mm² ... 2.5 mm² |
| 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 mm² ... 2.5 mm² |
| Conductor cross section flexible | 0.2 mm² ... 2.5 mm² |
| 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) at operating voltage ≤ 300 V AC |
| | Safe isolation (EN 50178) at operating voltage ≤ 300 V AC |

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## Technical data

### Insulation characteristics

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

### Standards and Regulations

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

### Conformance/approvals

| Designation | 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 |

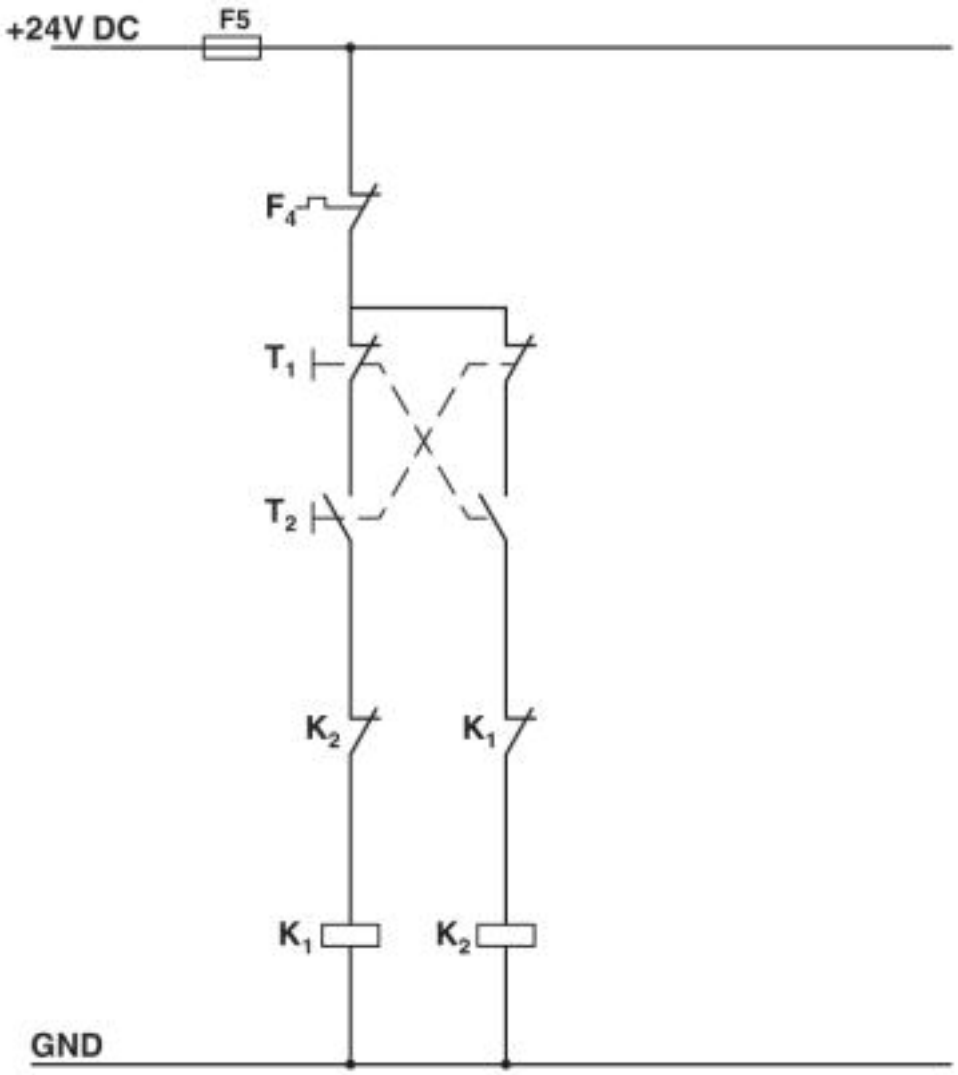
### Environmental Product Compliance

| REACh SVHC | Lead 7439-92-1 |
|---|---|
| China RoHS | Environmentally Friendly Use Period = 50 |
| | For details about hazardous substances go to tab “Downloads”, Category “Manufacturer's declaration” |

## Drawings

# Hybrid motor starter - ELR H5-I-SC-24DC/500AC-9-SP - 2904678

Circuit diagram




Conventional structure
Control current path contactor
K1 = Left contactor
K2 = Right contactor
T1 = Left, T2 = Right
F4 = Motor protection relay

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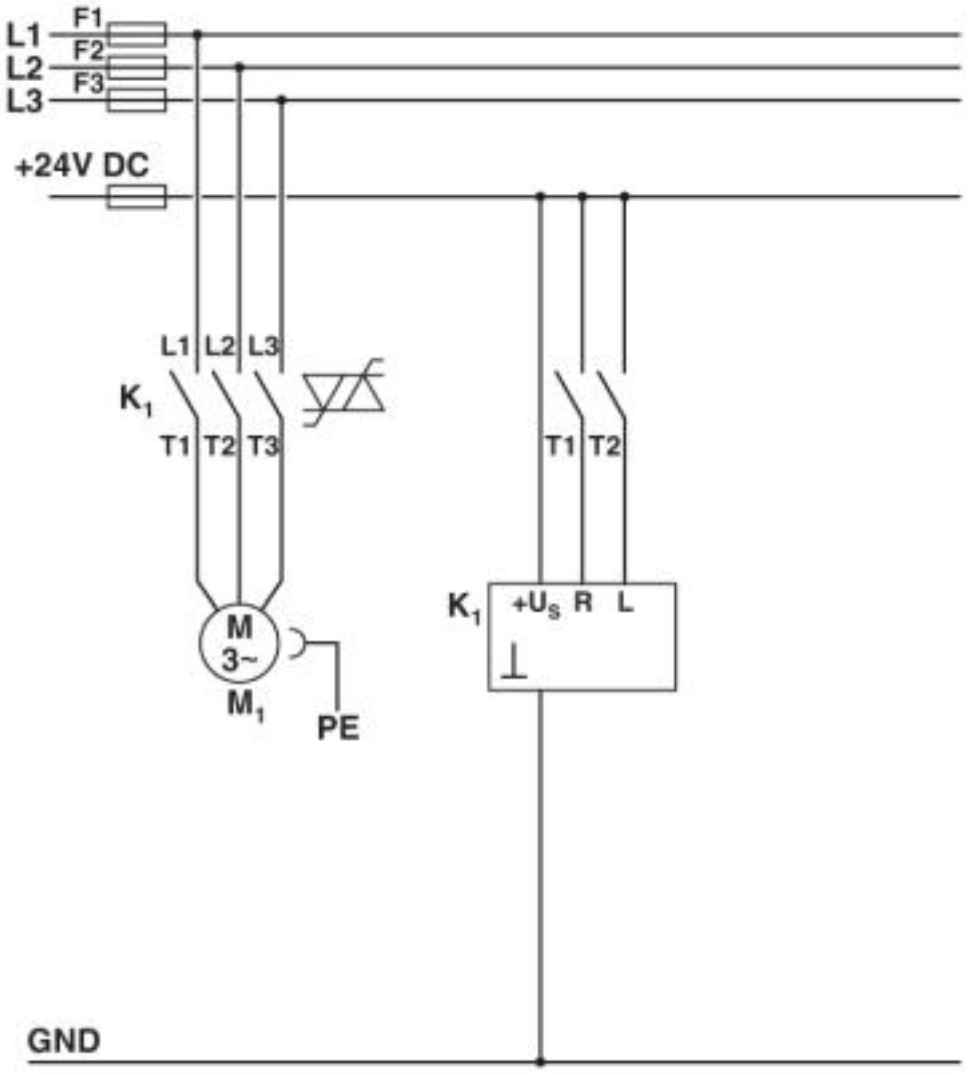
Circuit diagram




Structure with CONTACTRON
Main and control current path for '3 in 1' hybrid motor starter
K1 = '3 in 1' hybrid motor starter
T1 = Right, T2 = Left

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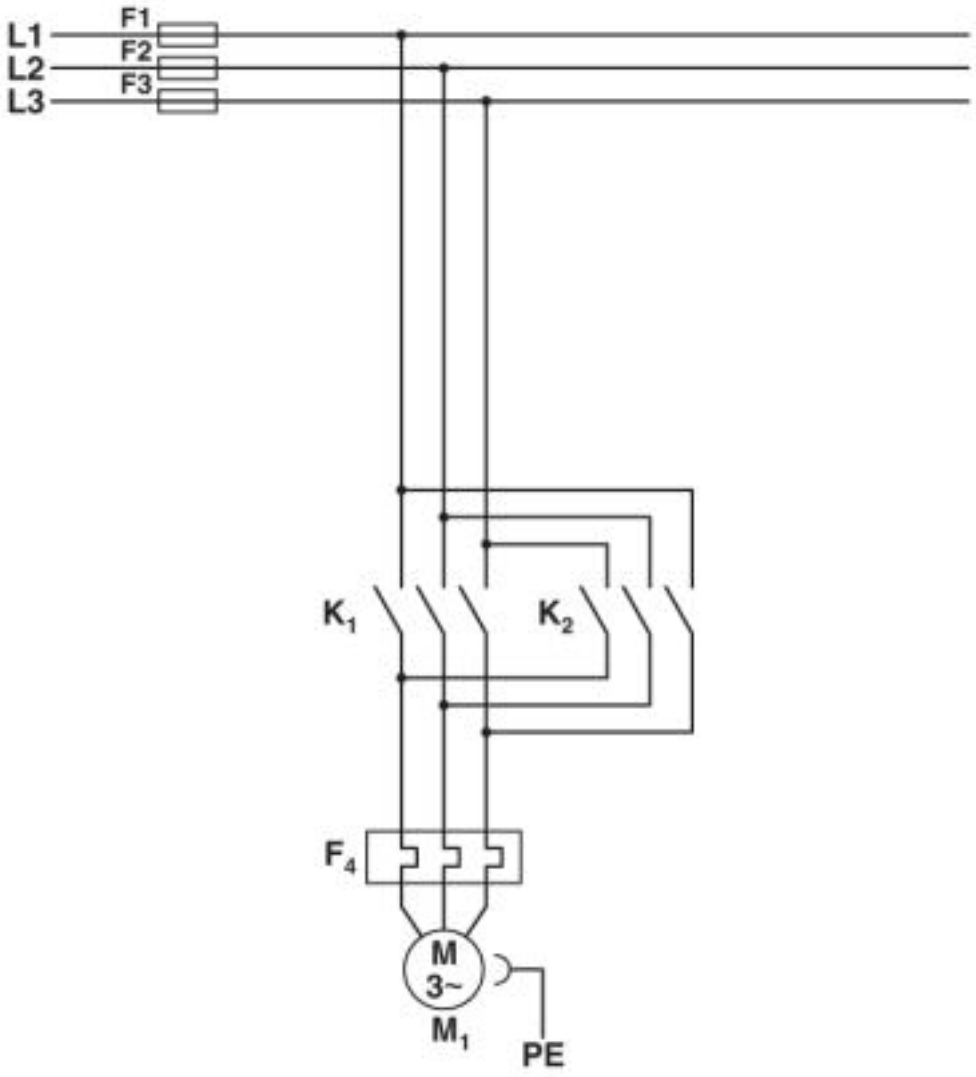
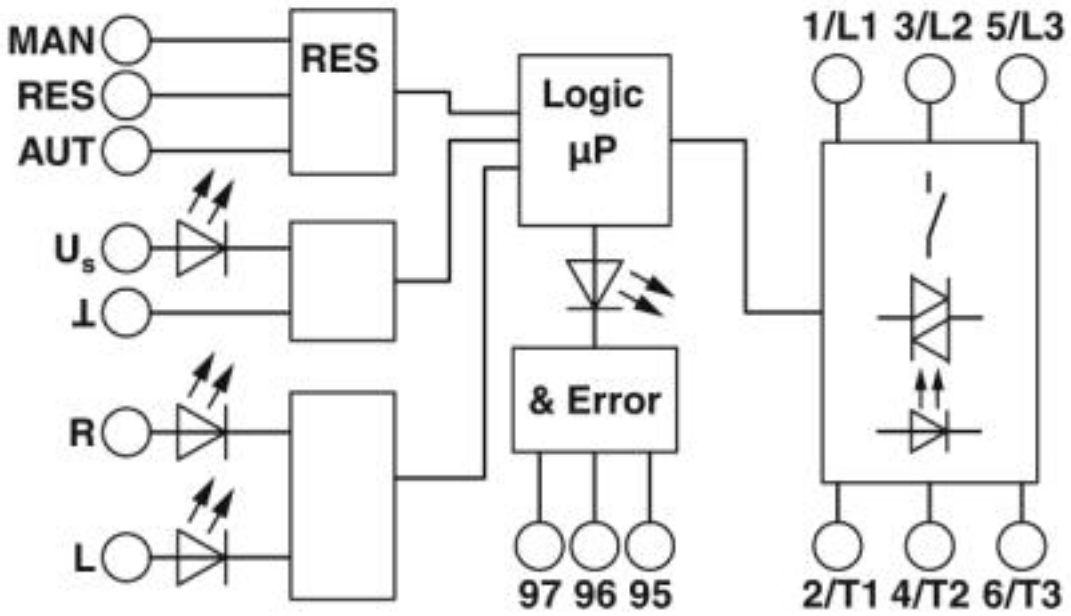
Circuit diagram




Conventional structure
Main current path contactor
K1 = Left contactor
K2 = Right contactor
F4 = Motor protection relay

# Hybrid motor starter - ELR H5-I-SC-24DC/500AC-9-SP - 2904678

Block diagram




## Classifications

### eCl@ss

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

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## Classifications

### UNSPSC

| | |
|---|---|
| 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 / UL Listed / cUL Listed / EAC

Ex Approvals

### Approval details

| | | | |
|---|---|---|---|
| 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 228652 |
| UL Listed | | http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm | FILE E 323771 |
| cUL Listed | | http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm | FILE E 323771 |
| EAC | | | RU C-DE.A*30.B.01082 |

## Accessories

### Accessories

Adapter

# Hybrid motor starter - ELR H5-I-SC-24DC/500AC-9-SP - 2904678

## 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, with ferrules included.

### Cover

# Hybrid motor starter - ELR H5-I-SC-24DC/500AC-9-SP - 2904678

## 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, with ferrules included.

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, with ferrules included.

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, with ferrules included.

# Hybrid motor starter - ELR H5-I-SC-24DC/500AC-9-SP - 2904678

## 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, with ferrules included.

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, with ferrules included.

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, with ferrules included.

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, with ferrules included.

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, with ferrules included.

# Hybrid motor starter - ELR H5-I-SC-24DC/500AC-9-SP - 2904678

## Accessories

Jumper - BRIDGE- 2-1M - 2901542

3-phase loop bridge for 2 modules from the CONTACTRON family with screw connection and 22.5 mm housing width, 1 m long connecting cable, without ferrules.

Jumper - BRIDGE- 3-1M - 2901655

3-phase loop bridge for 3 modules from the CONTACTRON family with screw connection and 22.5 mm housing width, 1 m long connecting cable, without ferrules.

Jumper - BRIDGE- 4-1M - 2901658

3-phase loop bridge for 4 modules from the CONTACTRON family with screw connection and 22.5 mm housing width, 1 m long connecting cable, without ferrules.

Jumper - BRIDGE- 5-1M - 2901544

3-phase loop bridge for 5 modules from the CONTACTRON family with screw connection and 22.5 mm housing width, 1 m long connecting cable, without ferrules.

Jumper - BRIDGE- 6-1M - 2901649

3-phase loop bridge for 6 modules in the CONTACTRON family with 1 m long connecting cable without ferrules, 22.5 mm housing width.