

# ELR W3- 24DC/500AC- 2I-BR - Hybrid motor starter



2297109

<https://www.phoenixcontact.com/us/products/2297109>

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Hybrid motor starter for reversing 3~ AC motors up to 550 V AC, with 24 V DC input, 2.4 A output current, adjustable overload shutdown, and limited phase failure detection

## Your advantages

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

## Commercial data

|                                      |               |
|--------------------------------------|---------------|
| Item number                          | 2297109       |
| Packing unit                         | 1 pc          |
| Minimum order quantity               | 1 pc          |
| Sales key                            | C470          |
| Product key                          | CK7422        |
| GTIN                                 | 4046356428347 |
| Weight per piece (excluding packing) | 217 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) |
| Maximum power dissipation | 3.3 W                   |
| Minimum power dissipation | 1.1 W                   |

### 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<br>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<br>Basic insulation (IEC 60947-1) at operating voltage 300 V AC ... 500 V AC<br>Safe isolation (IEC 60947-1) in the auxiliary circuit ≤ 300 V AC |

### Input data

#### Control

|                               |   |
|-------------------------------|---|
| 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 (Input type 1)                       |
| Switching threshold           | 9.6 V ("0" signal)<br>19.2 V ("1" signal) |
| Typical response time         | < 35 ms                                   |
| Typical turn-off time         | < 40 ms                                   |
| Protective circuit            | Reverse polarity protection               |

### Output data

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## AC output

|   |                                    |
|---|------------------------------------|
| Rated operating voltage $U_e$                     | 500 V AC                           |
| Operating voltage range                           | 42 V AC ... 550 V AC               |
| Rated operating current $I_e$                     | 2.4 A (AC-51)                      |
|   | 2.4 A (AC-53a)                     |
| Mains frequency                                   | 50/60 Hz                           |
| Load current range                                | 180 mA ... 2.4 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 01: floating changeover 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                | Screw connection                                  |
| Stripping length                 | 8 mm  |
| Screw thread                     | M3  |
| Conductor cross section rigid    | 0.2 mm <sup>2</sup> ... 2.5 mm <sup>2</sup>       |
| Conductor cross section flexible | 0.2 mm <sup>2</sup> ... 2.5 mm <sup>2</sup>       |
| Conductor cross section AWG      | 24 ... 14   |
| Tightening torque                | 0.5 Nm ... 0.6 Nm                                 |
|                                  | 5 lb <sub>F</sub> -in. ... 7 lb <sub>F</sub> -in. |

### Load circuit

|                                  |   |
|----------------------------------|---|
| Connection method                | Screw connection                                  |
| Stripping length                 | 8 mm  |
| Screw thread                     | M3  |
| Conductor cross section rigid    | 0.2 mm <sup>2</sup> ... 2.5 mm <sup>2</sup>       |
| Conductor cross section flexible | 0.2 mm <sup>2</sup> ... 2.5 mm <sup>2</sup>       |
| Conductor cross section AWG      | 24 ... 14   |
| Tightening torque                | 0.5 Nm ... 0.6 Nm                                 |
|                                  | 5 lb <sub>F</sub> -in. ... 7 lb <sub>F</sub> -in. |

## Signaling

|                           |            |
|---------------------------|------------|
| Status display            | Yellow LED |
| Operating voltage display | Green LED  |
| Error indication          | Red LED    |

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## Dimensions

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

## Material specifications

|  |              |
|--|--------------|
| Flammability rating according to UL 94 | 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 |
|-------------|----------------|

## Standards and regulations

### Standards/regulations

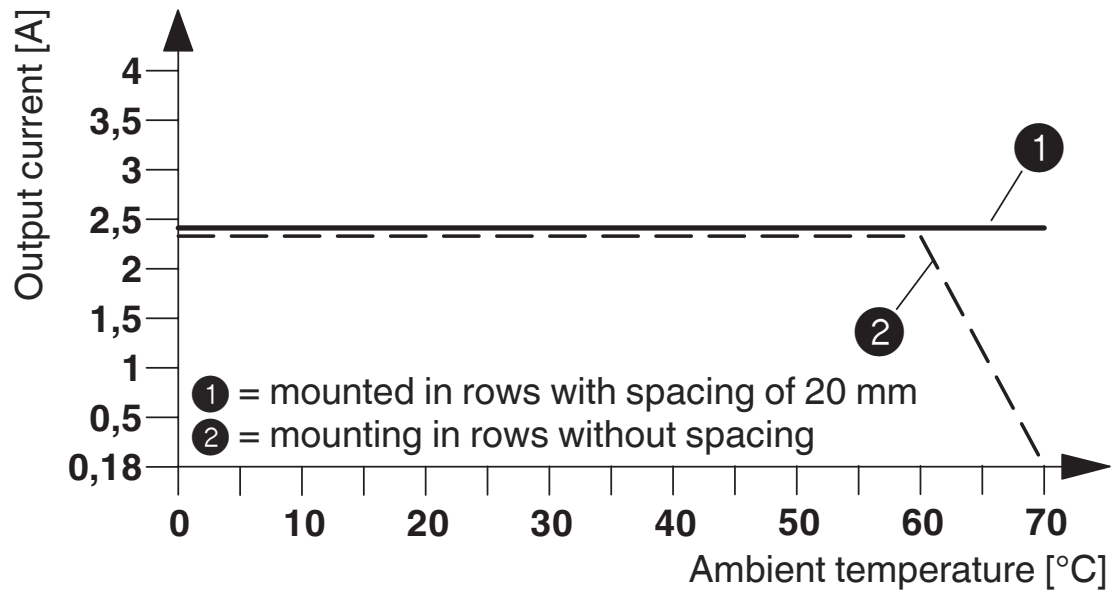
|                       |             |
|-----------------------|-------------|
| Standards/regulations | IEC 60947-1 |
|-----------------------|-------------|

## Mounting

|                   |   |
|-------------------|---|
| Mounting type     | DIN rail mounting                         |
| Assembly note     | can be aligned with spacing: see derating |
| Mounting position | Vertical (horizontal DIN rail)            |

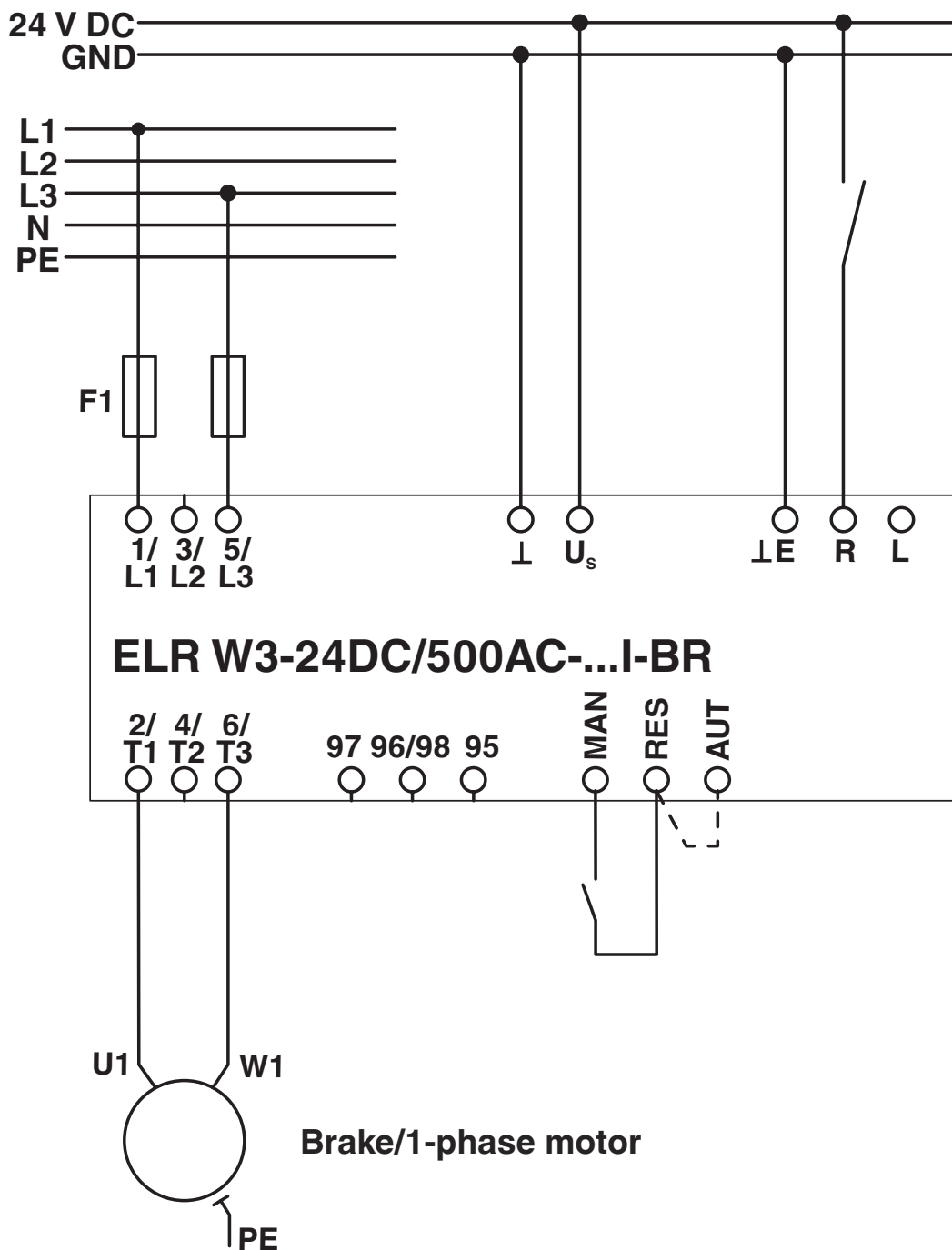
## Drawings

Diagram



Derating diagram

Circuit diagram

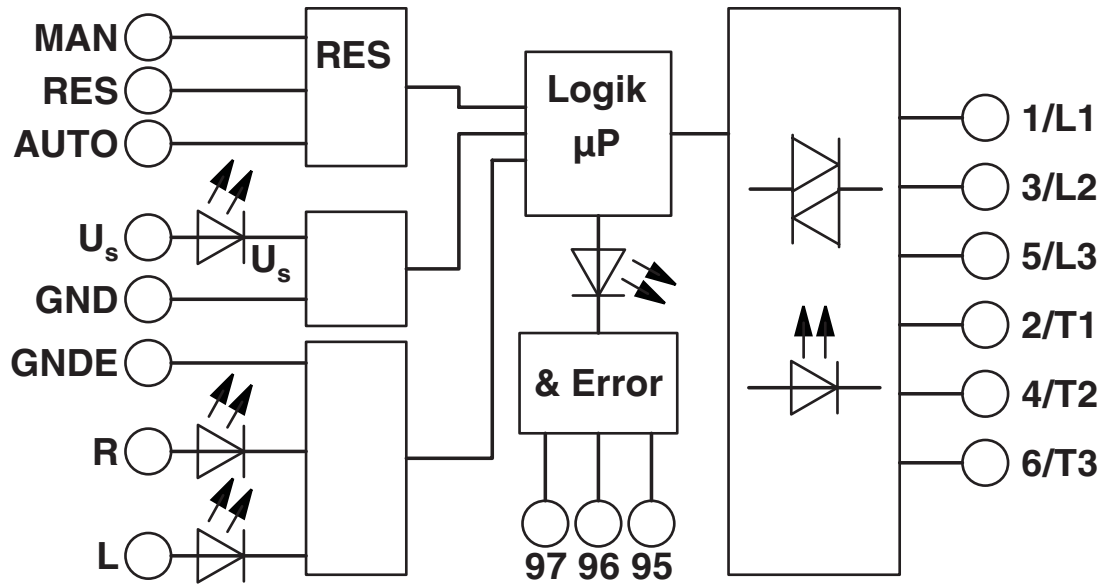


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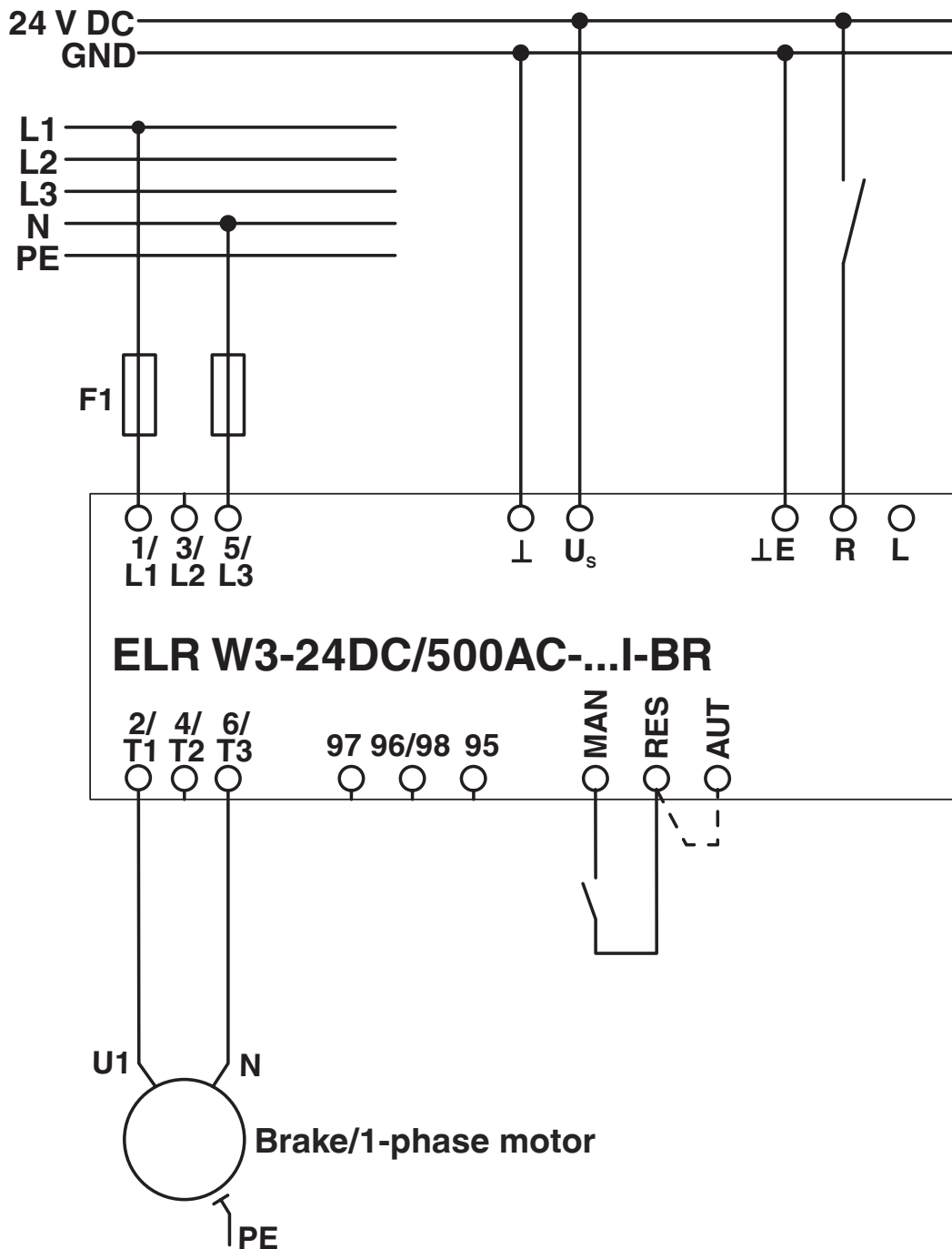
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Block diagram



Circuit diagram





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## Approvals

🔗 To download certificates, visit the product detail page: <https://www.phoenixcontact.com/us/products/2297109>



**EAC**

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



**CCC**

Approval ID: 2016010304871315

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## Classifications

### ECLASS

|             |          |
|-------------|----------|
| ECLASS-11.0 | 27370905 |
| ECLASS-12.0 | 27370905 |
| ECLASS-13.0 | 27370905 |

### ETIM

|          |          |
|----------|----------|
| ETIM 8.0 | 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                                | 691b943a-eeec-4213-a48f-3ca24220efc4 |

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## Accessories

### BRIDGE- 2 - Bridge

2900746

<https://www.phoenixcontact.com/us/products/2900746>

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



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### BRIDGE- 3 - Bridge

2900747

<https://www.phoenixcontact.com/us/products/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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## BRIDGE- 4 - Bridge

2900748

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



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## BRIDGE- 5 - Bridge

2900749

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



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## BRIDGE- 6 - Bridge

2900750

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



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## BRIDGE- 7 - Bridge

2900751

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



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## BRIDGE- 8 - Bridge

2900752

<https://www.phoenixcontact.com/us/products/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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## BRIDGE- 9 - Bridge

2900753

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



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## BRIDGE-10 - Bridge

2900754

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



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## BRIDGE- 2-3M - Bridge

2901543

<https://www.phoenixcontact.com/us/products/2901543>

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





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## BRIDGE- 3-3M - Bridge

2901656

<https://www.phoenixcontact.com/us/products/2901656>

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



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## BRIDGE- 4-3M - Bridge

2901659

<https://www.phoenixcontact.com/us/products/2901659>

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



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## BRIDGE- 5-3M - Bridge

2901545

<https://www.phoenixcontact.com/us/products/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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## BRIDGE- 6-3M - Bridge

2901697

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



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## BRIDGE- 7-3M - Bridge

2901698

<https://www.phoenixcontact.com/us/products/2901698>

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



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## BRIDGE- 8-3M - Bridge

2901700

<https://www.phoenixcontact.com/us/products/2901700>

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



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## BRIDGE- 9-3M - Bridge

2901701

<https://www.phoenixcontact.com/us/products/2901701>

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



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## BRIDGE-10-3M - Bridge

2901702

<https://www.phoenixcontact.com/us/products/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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## BRIDGE- 2-1M - Bridge

2901542

<https://www.phoenixcontact.com/us/products/2901542>

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



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## BRIDGE- 3-1M - Bridge

2901655

<https://www.phoenixcontact.com/us/products/2901655>

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



# ELR W3- 24DC/500AC- 2I-BR - Hybrid motor starter



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## BRIDGE- 4-1M - Bridge

2901658

<https://www.phoenixcontact.com/us/products/2901658>

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



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## BRIDGE- 5-1M - Bridge

2901544

<https://www.phoenixcontact.com/us/products/2901544>

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



# ELR W3- 24DC/500AC- 2I-BR - Hybrid motor starter



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## BRIDGE- 6-1M - Bridge

2901649

<https://www.phoenixcontact.com/us/products/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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## BRIDGE COVER - Covering hood

2906240

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



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

0828790

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

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

0819301

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



# ELR W3- 24DC/500AC- 2I-BR - Hybrid motor starter



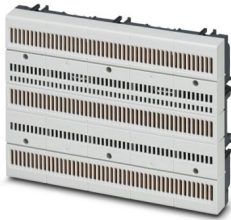
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## EM-CPS-225 - Power distribution board

1002634

<https://www.phoenixcontact.com/us/products/1002634>



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

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## EM-CPS-405 - Power distribution board

1002635

<https://www.phoenixcontact.com/us/products/1002635>



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

# ELR W3- 24DC/500AC- 2I-BR - Hybrid motor starter



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

1002633

<https://www.phoenixcontact.com/us/products/1002633>



Connection module with integrated spring-loaded terminals for cables from 1.5 to 16 mm<sup>2</sup>, 3-pos., maximum 63 A

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

1002668

<https://www.phoenixcontact.com/us/products/1002668>



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

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Phoenix Contact USA  
586 Fulling Mill Road  
Middletown, PA 17057, United States  
(+717) 944-1300  
[info@phoenixcon.com](mailto:info@phoenixcon.com)