

# ELR W3-230AC/500AC- 9I - Hybrid motor starter



2297060

<https://www.phoenixcontact.com/in/products/2297060>

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"4 in 1" three-phase semiconductor reversing contactor with 230 V AC input, 9 A output current, emergency stop function, and adjustable overload switching.

## Your advantages

- 22.5 mm wide
- Safety level in accordance with 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

## Commercial Data

Item number	2297060
Packing unit	1 pc
Minimum order quantity	1 pc
Sales Key	CK7
Product Key	CK7414
Catalog Page	Page 19 (C-7-2013)
GTIN	4046356170598
Weight per Piece (including packing)	314.675 g
Weight per Piece (excluding packing)	223.15 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
Maximum power dissipation for nominal condition	13.5 W
Switching frequency	≤ 2 Hz (Load-dependent)
Maximum power dissipation	16.1 W
Minimum power dissipation	2.6 W

### Supply

Rated control circuit supply voltage $U_S$	230 V AC
Control supply voltage range	92 V AC ... 253 V AC
Rated control supply current $I_S$	4 mA
Mains frequency	40/100 Hz
Protective circuit	Surge 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
	Basic insulation (IEC 60947-1) at operating voltage 300 V AC ... 500 V AC
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

## Input data

### Control

Input name	Control input right/left
Rated actuating voltage $U_C$	230 V AC
Triggering voltage range	92 V AC ... 253 V AC
Rated actuating current $I_C$	7 mA
Switching threshold	44 V AC ("0" signal)
	85 V AC ("1" signal)
Switching level	< 5 V DC (For EMERGENCY STOP)
Typical response time	< 35 ms
Typical turn-off time	< 80 ms

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## Output data

### AC output

Rated operating voltage $U_e$	500 V AC
Operating voltage range	42 V AC ... 550 V AC
Rated operating current $I_e$	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)
Protective circuit	Surge protection

### Acknowledge output

Note	Confirmation: floating change-over contact, signal contact
Contact type	1 changeover contact
Switching capacity in accordance with IEC 60947-5-1	3 A (230 V, AC15) 2 A (24 V, DC13)
Residual voltage	< 0.5 V

## 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.

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## Signaling

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

## Dimensions

Width	22.5 mm
Height	107 mm
Depth	114 mm

## Material specifications

Flammability rating according to UL 94	V0 (Housing)
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## 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	<input type="checkbox"/> II (2) G [Ex e] [Ex d] [Ex px]
	<input type="checkbox"/> II (2) D [Ex t] [Ex p]
Certificate	PTB 07 ATEX 3145

### UL approval

Certificate	NLDX.E228652
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### 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

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## 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

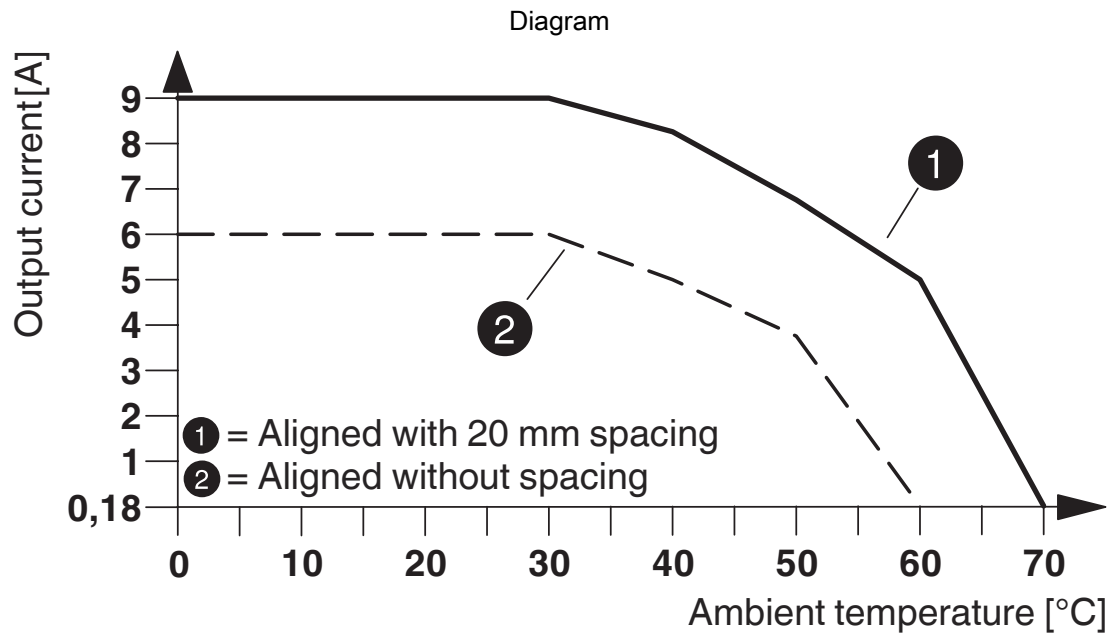
### Standards/regulations

Standards/regulations	EN 60947
	IEC 61508
	ISO 13849

## Mounting

Mounting type	DIN rail mounting
Assembly instructions	Can be aligned with spacing = 20 mm
Mounting position	Vertical (horizontal DIN rail)

## Drawings



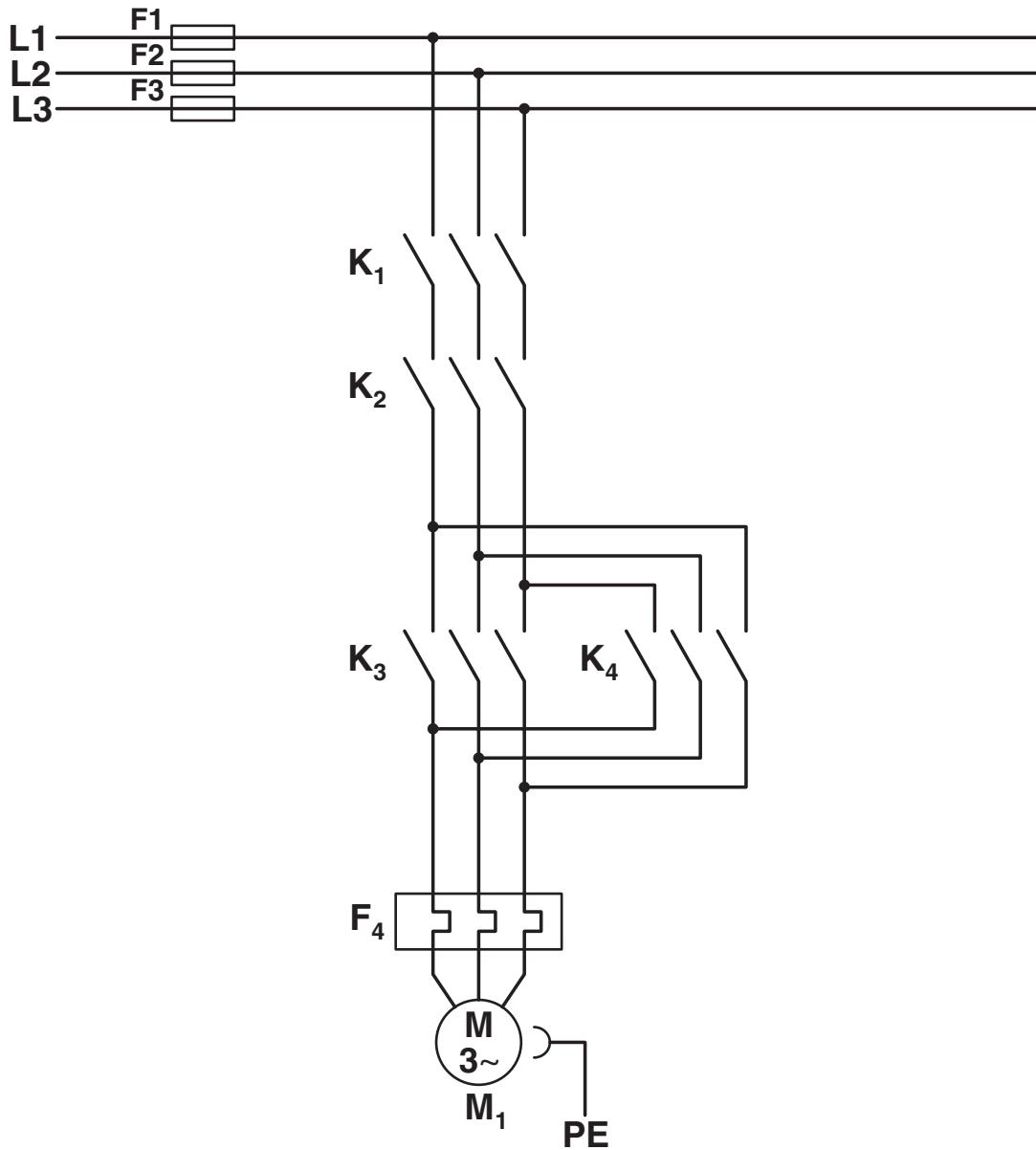
Derating diagram

# ELR W3-230AC/500AC- 9I - Hybrid motor starter

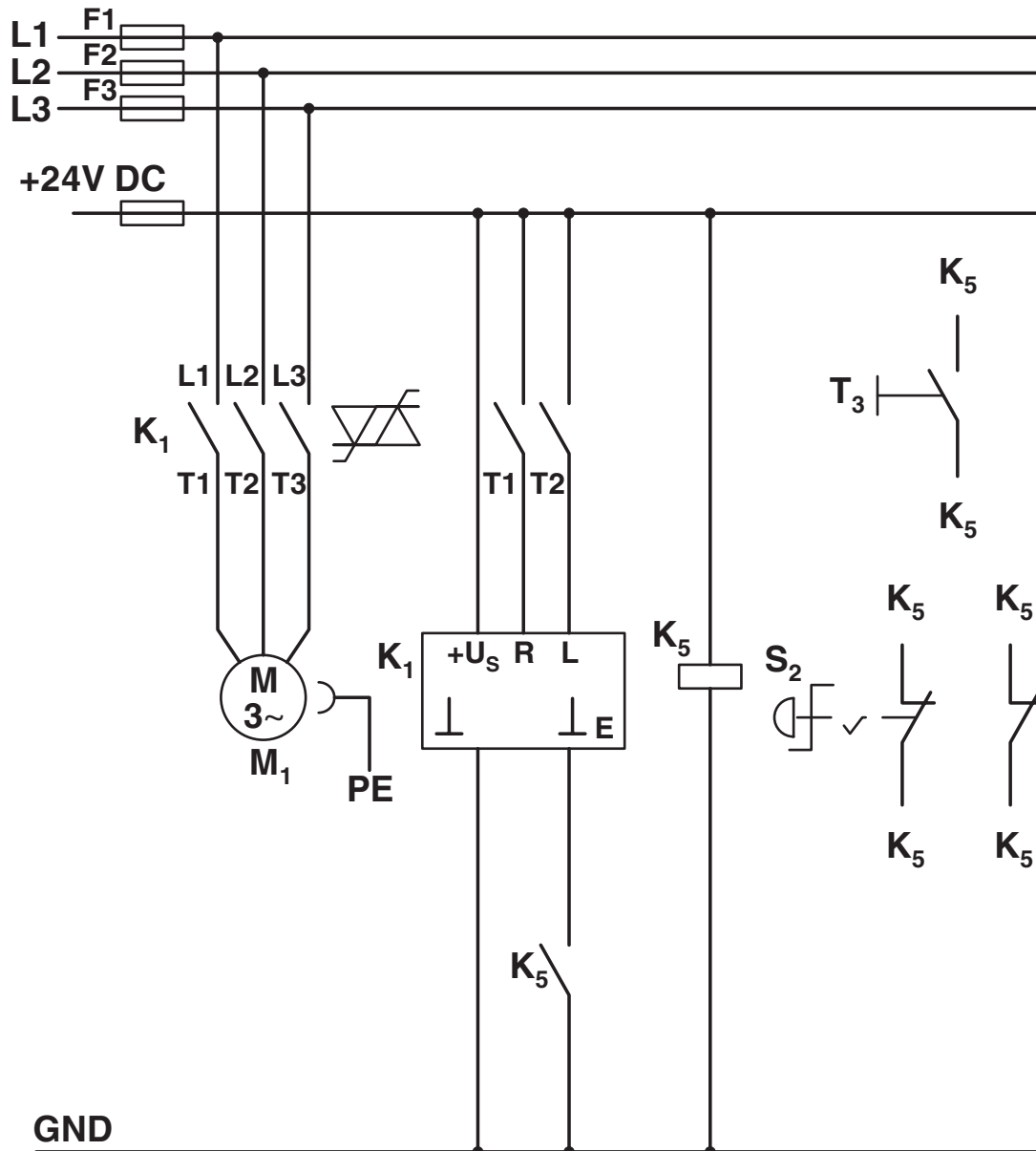
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Circuit diagram



Circuit diagram



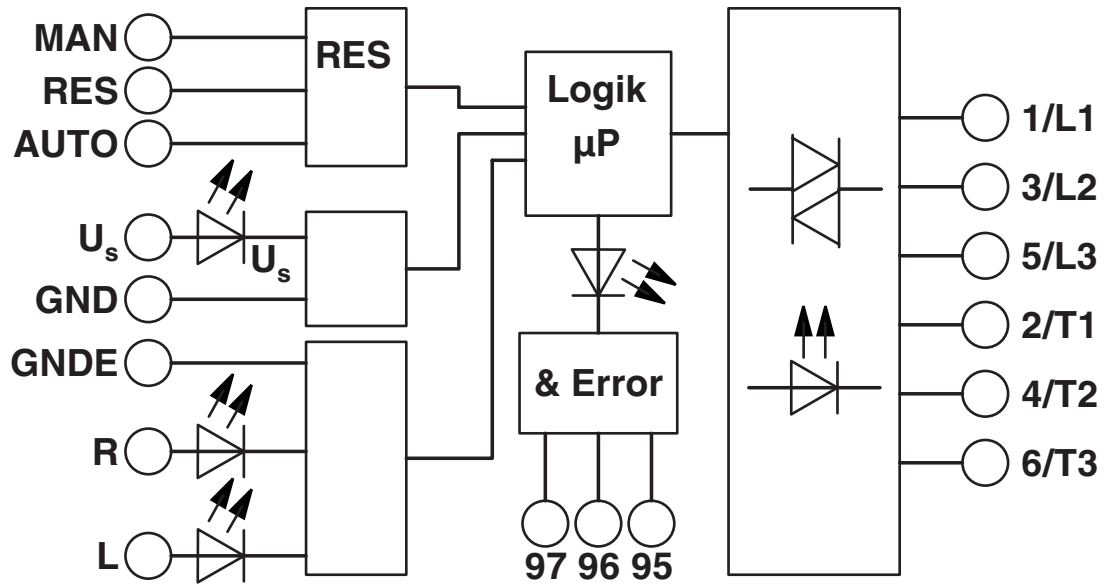


# ELR W3-230AC/500AC- 9I - Hybrid motor starter

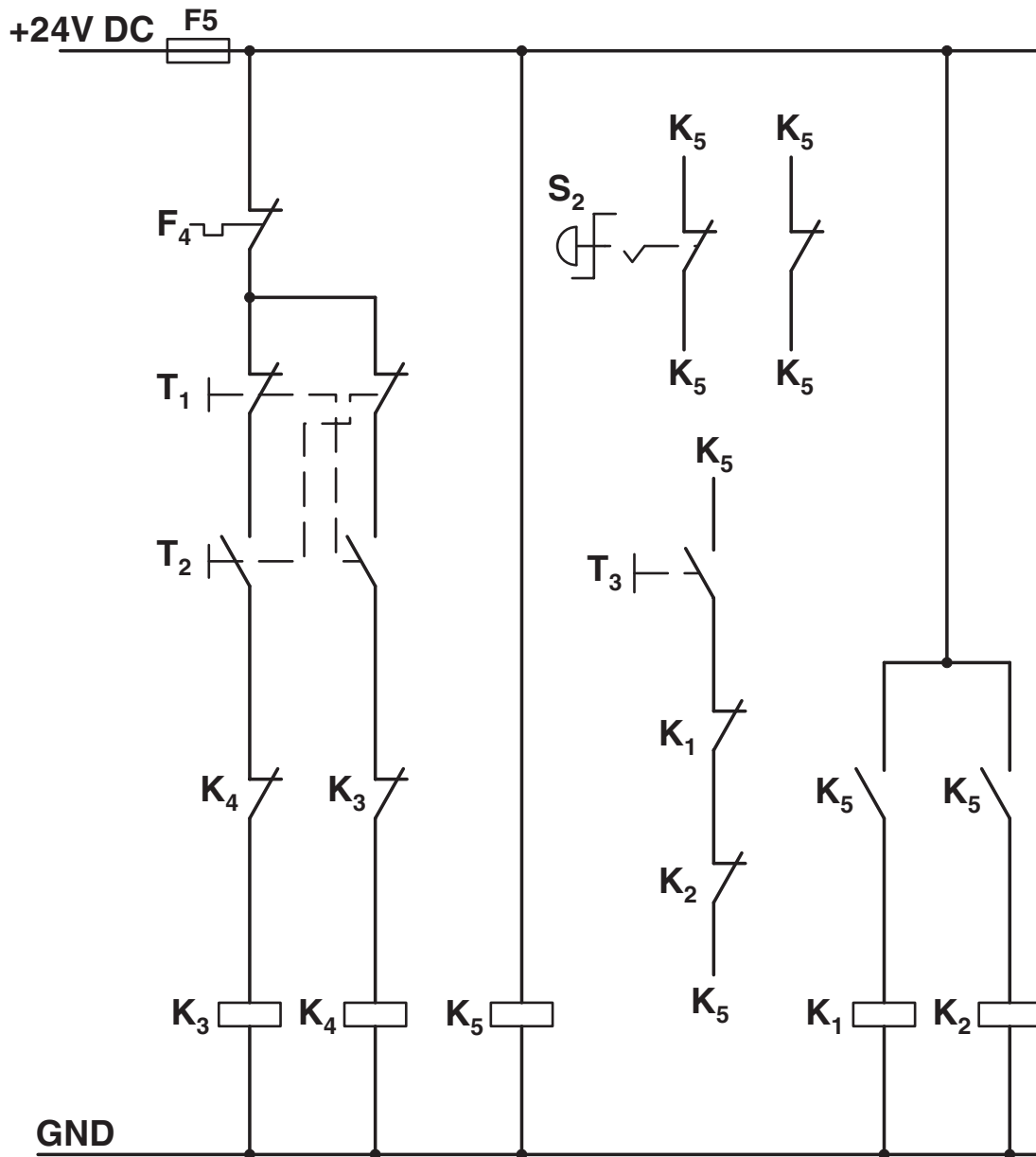
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Block diagram



Circuit diagram



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## Approvals



**IECEE CB Scheme**  
Approval ID: DE1-55728



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



**DNV GL**  
Approval ID: TAA00002HK



**UL Listed**  
Approval ID: FILE E 323771



**CCC**  
Approval ID: 2016010304871315



**cUL Listed**  
Approval ID: FILE E 323771



**cUL Listed**  
Approval ID: FILE E 228652



**UL Listed**  
Approval ID: FILE E 228652



**ATEX**  
Approval ID: PTB 07 ATEX 3145

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## Classifications

### ECLASS

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

### ETIM

ETIM 8.0	EC001037
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### UNSPSC

UNSPSC 21.0	25173900
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## Environmental Product Compliance

REACH SVHC	Lead 7439-92-1
China RoHS	Environmentally Friendly Use Period = 50 years
	For information on hazardous substances, refer to the manufacturer's declaration available under "Downloads"

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## Accessories

### BRIDGE- 2 - Bridge

2900746

<https://www.phoenixcontact.com/in/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/in/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/in/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/in/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/in/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/in/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/in/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/in/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/in/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/in/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/in/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/in/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/in/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

<https://www.phoenixcontact.com/in/products/2901697>

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/in/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/in/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/in/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/in/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/in/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/in/products/2901655>

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



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## BRIDGE- 4-1M - Bridge

2901658

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

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





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## BRIDGE- 6-1M - Bridge

2901649

<https://www.phoenixcontact.com/in/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/in/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/in/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/in/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 W3-230AC/500AC- 9I - Hybrid motor starter



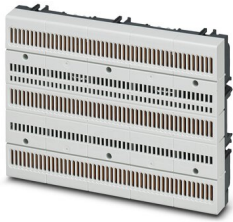
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## EM-CPS-225 - Power distribution board

1002634

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



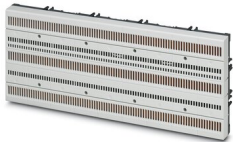
Modular power distribution board with CrossLink<sup>®</sup> interface, 125 A, 3-pos., touch-proof and protection against polarity reversal, width: 225 mm

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## EM-CPS-405 - Power distribution board

1002635

<https://www.phoenixcontact.com/in/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

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

1002633

<https://www.phoenixcontact.com/in/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/in/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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