

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



2903906

<https://www.phoenixcontact.com/de/produkte/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 DC control voltage, adjustable overload shutdown and emergency stop function to SIL 3/PL e and push-in connection

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

Commercial Data

Item number	2903906
Packing unit	1 pc
Minimum order quantity	1 pc
Sales Key	G1 - Relais
Product Key	CK7414
Catalog Page	Page 28 (C-5-2019)
GTIN	4046356771290
Weight per Piece (including packing)	300,3 g
Weight per Piece (excluding packing)	273,6 g
Customs tariff number	85371098
Country of origin	DE

Technical Data

Product properties

Product type	Hybrid motor starter
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	14.6 W
Minimum power dissipation	1.1 W
Coordination type	1

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
	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
	Basic isolation (IEC 60947-1) at operating voltage 300 ... 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

Emergency tripping

Operate threshold	> 45 A
Response time	2 s

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)
	19.2 V ("1" signal)

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Switching level	< 5 V DC (For EMERGENCY STOP)
Typical turn-off time	< 30 ms
Protective circuit	Reverse polarity protection

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
Protective circuit	Surge protection

Acknowledge output

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

Connection data

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

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

LED signaling

Status display	Yellow LED
Operating voltage display	Green LED
Indication	Red LED

Dimensions

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Width	22.5 mm
Height	107.5 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

Approval data

UKCA

Certificate	UKCA-compliant
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UKCA

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

UKCA

Certificate	NLDX.E228652
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UKCA

Identification	≤ 3
Note	Safe shutdown

UKCA

Identification	2
Note	Motor protection

UKCA

Identification	≤ e
Note	Safe shutdown

UKCA

Identification	≤ 3
Note	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

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	stranded)
	30 A (class CC or J, SCCR 100kA, #24 - 14 AWG max, solid and stranded)
Category code	NLDX

Standards and regulations

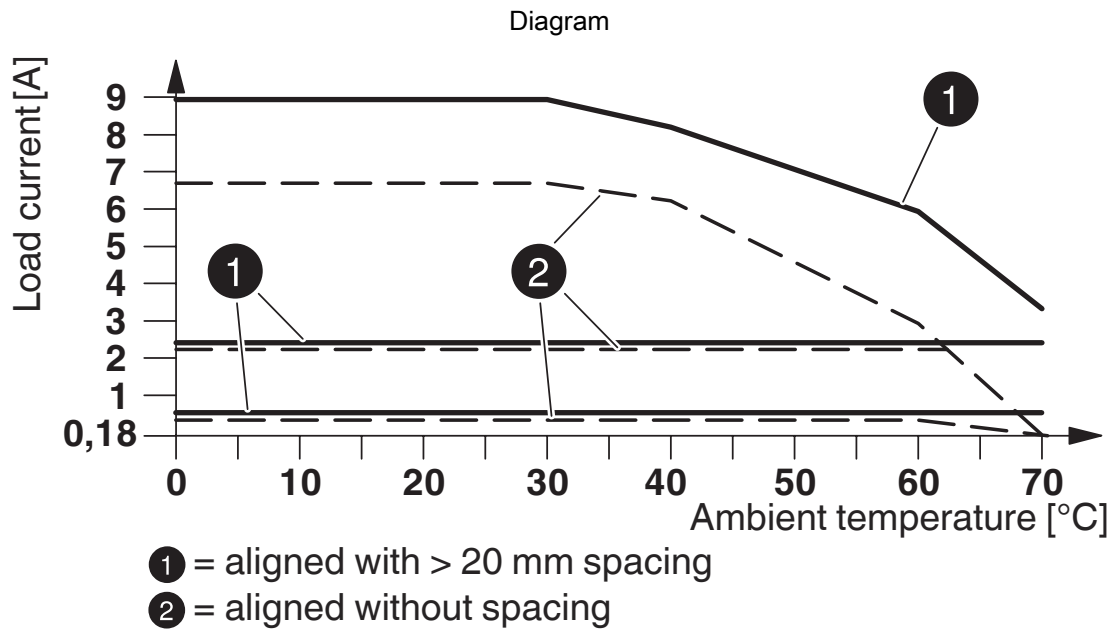
Standards/regulations

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

Mounting

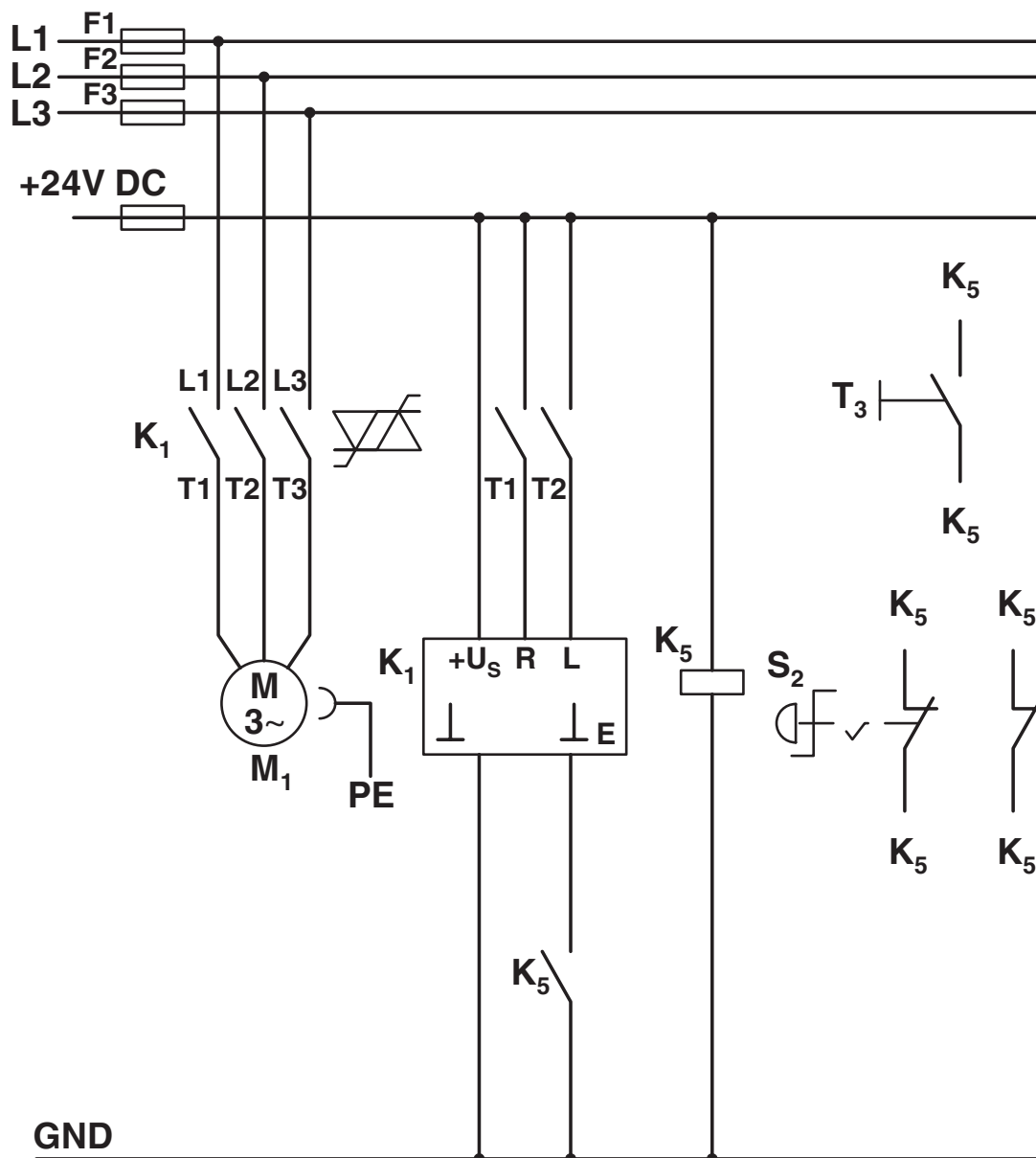
Mounting type	DIN rail mounting
Assembly instructions	alignable, for spacing see derating
Mounting position	vertical (horizontal DIN rail, motor output below)

Drawings



Derating diagram

Circuit diagram



Structure with CONTACTRON

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

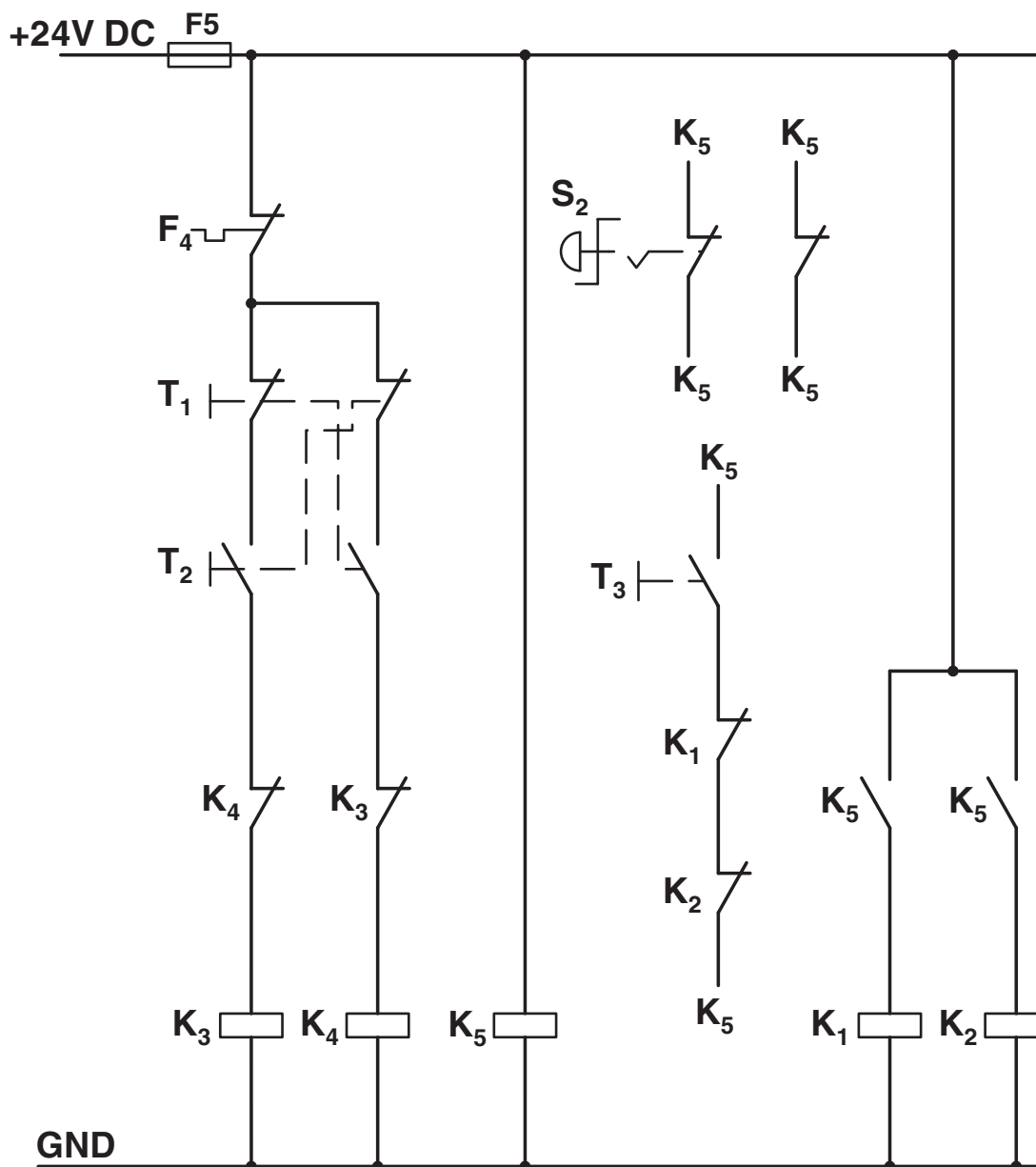
K1 = '4 in 1' hybrid motor starter with reversing function

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

T1 = Right, T2 = Left, T3 = Reset

S2 = Emergency stop

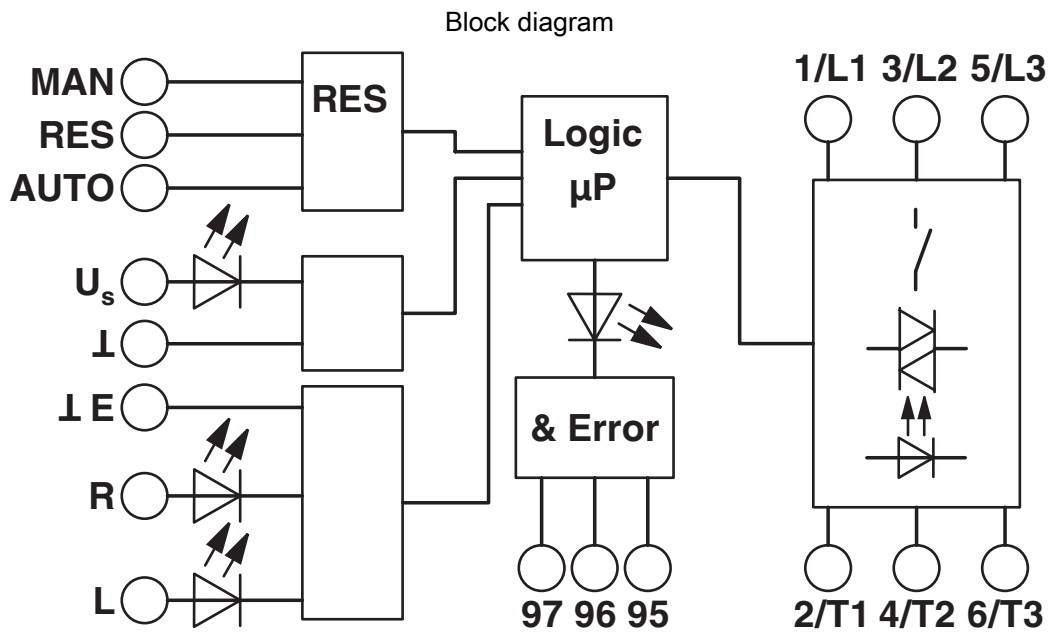
Circuit diagram



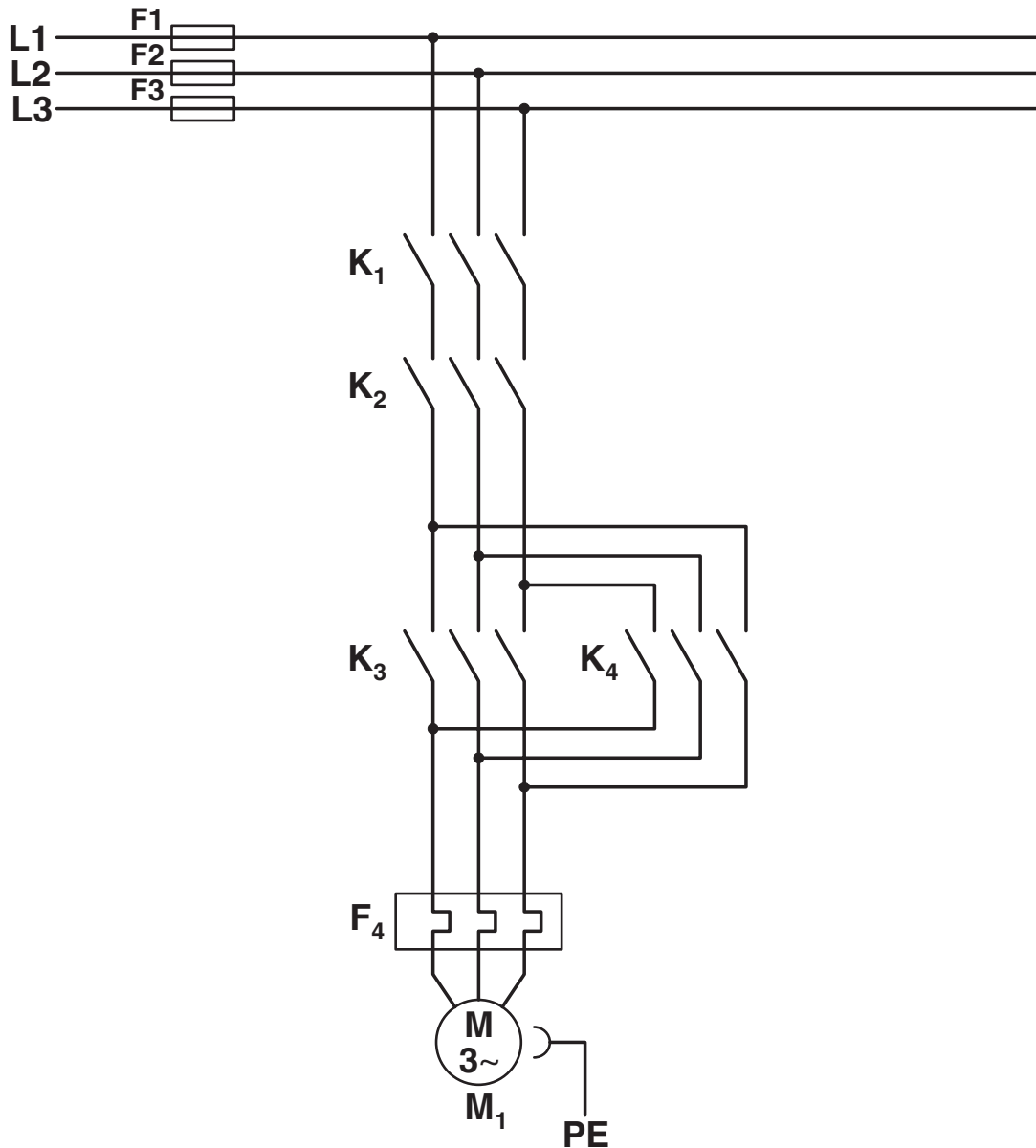
Conventional structure

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



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

Approvals



IECEE CB Scheme

Approval ID: DE1-55728



EAC

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



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-9.0	27370905
ECLASS-10.0.1	27370905
ECLASS-11.0	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

Plastic label

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

<https://www.phoenixcontact.com/de/produkte/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

Bridge

Bridge - BRIDGE-PT 1 - 1161777

<https://www.phoenixcontact.com/de/produkte/1161777>



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

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Plastic label

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

<https://www.phoenixcontact.com/de/produkte/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

Bridge

Bridge - BRIDGE-PT 2 - 2904490

<https://www.phoenixcontact.com/de/produkte/2904490>



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

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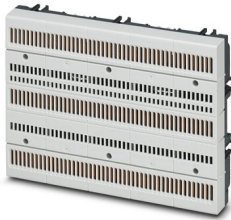
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Power distribution board

Power distribution board - EM-CPS-225 - 1002634

<https://www.phoenixcontact.com/de/produkte/1002634>



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

Bridge

Bridge - BRIDGE-PT 3 - 2904491

<https://www.phoenixcontact.com/de/produkte/2904491>



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

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Power distribution board

Power distribution board - EM-CPS-405 - 1002635

<https://www.phoenixcontact.com/de/produkte/1002635>

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



Bridge

Bridge - BRIDGE-PT 4 - 2904492

<https://www.phoenixcontact.com/de/produkte/2904492>

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



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Connection module

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

<https://www.phoenixcontact.com/de/produkte/1002633>



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

Bridge

Bridge - BRIDGE-PT 5 - 2904493

<https://www.phoenixcontact.com/de/produkte/2904493>



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

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Adapter

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

<https://www.phoenixcontact.com/de/produkte/1002668>



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

Bridge

Bridge - BRIDGE-PT 6 - 2904494

<https://www.phoenixcontact.com/de/produkte/2904494>



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

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Bridge

Bridge - BRIDGE-PT 7 - 2904495

<https://www.phoenixcontact.com/de/produkte/2904495>

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



Bridge

Bridge - BRIDGE-PT 8 - 2904496

<https://www.phoenixcontact.com/de/produkte/2904496>

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



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Bridge

Bridge - BRIDGE-PT 9 - 2904497

<https://www.phoenixcontact.com/de/produkte/2904497>

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



Bridge

Bridge - BRIDGE-PT 10 - 2904498

<https://www.phoenixcontact.com/de/produkte/2904498>

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



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Bridge

Bridge - BRIDGE-PT 1-1M - 1161778

<https://www.phoenixcontact.com/de/produkte/1161778>

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



Bridge

Bridge - BRIDGE-PT-2-1M - 1049407

<https://www.phoenixcontact.com/de/produkte/1049407>

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



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Bridge

Bridge - BRIDGE-PT-3-1M - 1049408

<https://www.phoenixcontact.com/de/produkte/1049408>

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



Bridge

Bridge - BRIDGE-PT-4-1M - 1049409

<https://www.phoenixcontact.com/de/produkte/1049409>

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



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Bridge

Bridge - BRIDGE-PT-5-1M - 1049413

<https://www.phoenixcontact.com/de/produkte/1049413>

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



Bridge

Bridge - BRIDGE-PT-2-2M/0,3M - 1107649

<https://www.phoenixcontact.com/de/produkte/1107649>

3-phase loop bridge for 2 CONTACTRON modules, with Push-in connection and 22.5 mm housing width, cable length between the modules: 0.3 m, connecting cable: 2 m



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Bridge

Bridge - BRIDGE-PT-3-2M/0,3M - 1107650

<https://www.phoenixcontact.com/de/produkte/1107650>



3-phase loop bridge for 3 CONTACTRON modules, with Push-in connection and 22.5 mm housing width, cable length between the modules: 0.3 m, connecting cable: 2 m

Bridge

Bridge - BRIDGE-PT-4-2M/0,3M - 1107644

<https://www.phoenixcontact.com/de/produkte/1107644>



3-phase loop bridge for 4 CONTACTRON modules, with Push-in connection and 22.5 mm housing width, cable length between the modules: 0.3 m, connecting cable: 2 m

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Covering hood

Covering hood - BRIDGE COVER - 2906240

<https://www.phoenixcontact.com/de/produkte/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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