

# Hybrid motor starter - ELR H5-I-PT- 24DC/500AC-2



2903910

<https://www.phoenixcontact.com/pc/products/2903910>

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Hybrid motor starter for reversing 3~ AC motors up to 500 V AC and 2.4 A output current, with 24 V DC control voltage, adjustable overload shutdown, and push-in connection.

## 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

## Commercial Data

Item number	2903910
Packing unit	1 pc
Minimum order quantity	1 pc
Product Key	CK7422
Catalog Page	Page 29 (C-5-2019)
GTIN	4046356771337
Weight per Piece (including packing)	284 g
Weight per Piece (excluding packing)	217.7 g
Customs tariff number	85371098
Country of origin	DE

## Technical Data

### Notes

Notes on operation	If this device is to be used in combination with the CrossPowerSystem power distribution board, the device mount for the 16 A fuse (order designation: EM-CPS-DA-22,5F/16A; order number: 1002668) is required in order to attach the hybrid motor starter to the power distribution board.
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### 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	2.2 W
Switching frequency	≤ 2 Hz (Load-dependent)
Maximum power dissipation	3.3 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 (e. g., 230/400 V AC, 277/480 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 $U_C$	24 V DC
Triggering voltage range	19.2 V DC ... 30 V DC

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Rated actuating current $I_C$	5 mA (Input type 1)
Switching threshold	9.6 V ("0" signal)
	19.2 V ("1" signal)
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 $I_e$	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: 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 <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

### Load circuit

Connection method	Push-in connection
Stripping length	10 mm
Conductor cross section solid	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

## LED signaling

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

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## Dimensions

Width	22.5 mm
Height	107.5 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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### UL approval

Certificate	NLDX.E228652
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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	2.4 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

## Standards and regulations

### Standards/regulations

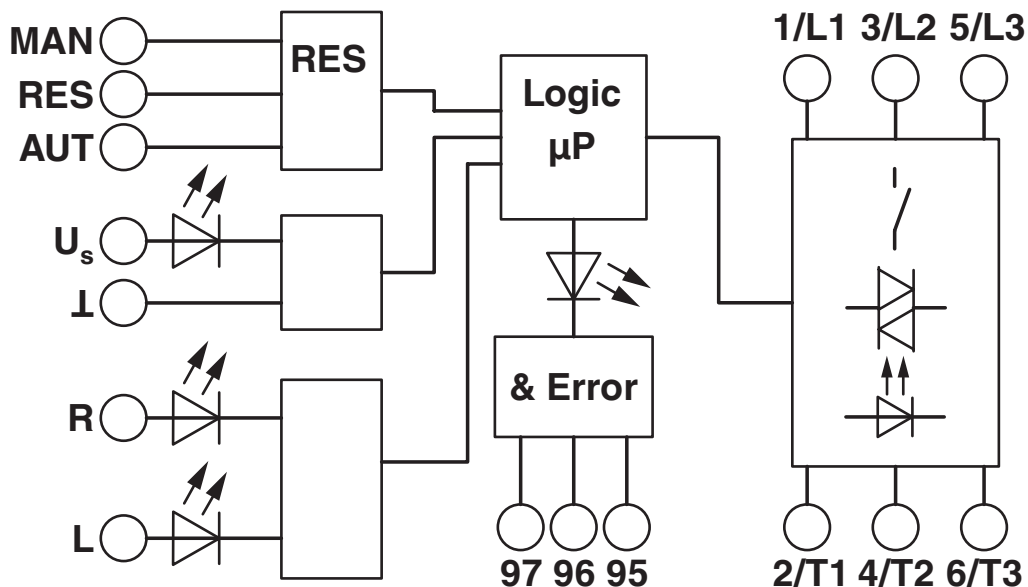
Standards/regulations	IEC 60947-1
	IEC 60947-4-2
	IEC 61508
	ISO 13849

## Mounting

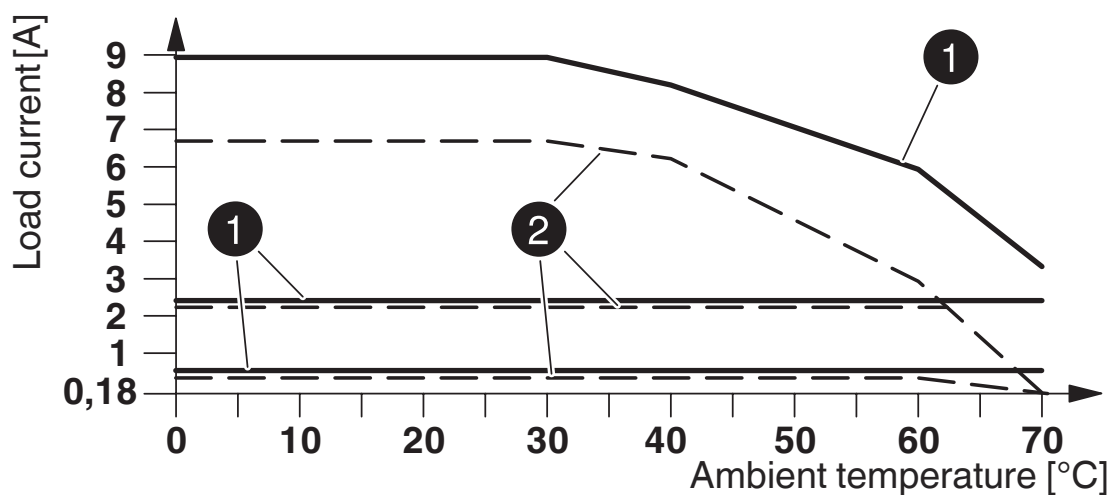
Mounting type	DIN rail mounting
Assembly instructions	alignable, for spacing see derating
Mounting position	vertical (horizontal DIN rail, motor output below)

## Drawings

Block diagram



Diagram



- ① = aligned with > 20 mm spacing
- ② = aligned without spacing

Derating diagram

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## 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**

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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/pc/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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### Plastic label

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

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

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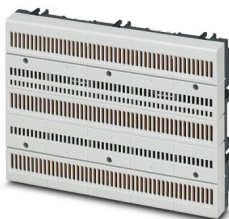
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## Power distribution board

Power distribution board - EM-CPS-225 - 1002634

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



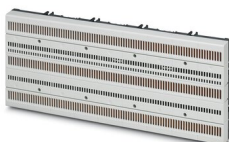
Modular power distribution board with CrossLink<sup>®</sup> interface, 125 A, 3-pos., touch-proof and protection against polarity reversal, width: 225 mm

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## Power distribution board

Power distribution board - EM-CPS-405 - 1002635

<https://www.phoenixcontact.com/pc/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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## Connection module

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

<https://www.phoenixcontact.com/pc/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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## Adapter

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

<https://www.phoenixcontact.com/pc/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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## Bridge

Bridge - BRIDGE-PT 1 - 1161777

<https://www.phoenixcontact.com/pc/products/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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## Bridge

Bridge - BRIDGE-PT 2 - 2904490

<https://www.phoenixcontact.com/pc/products/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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## Bridge

Bridge - BRIDGE-PT 3 - 2904491

<https://www.phoenixcontact.com/pc/products/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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## Bridge

Bridge - BRIDGE-PT 4 - 2904492

<https://www.phoenixcontact.com/pc/products/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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## Bridge

Bridge - BRIDGE-PT 5 - 2904493

<https://www.phoenixcontact.com/pc/products/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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## Bridge

Bridge - BRIDGE-PT 6 - 2904494

<https://www.phoenixcontact.com/pc/products/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/pc/products/2904495>

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



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## Bridge

Bridge - BRIDGE-PT 8 - 2904496

<https://www.phoenixcontact.com/pc/products/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/pc/products/2904497>

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



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## Bridge

Bridge - BRIDGE-PT 10 - 2904498

<https://www.phoenixcontact.com/pc/products/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/pc/products/1161778>

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



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## Bridge

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

<https://www.phoenixcontact.com/pc/products/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/pc/products/1049408>

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



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## Bridge

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

<https://www.phoenixcontact.com/pc/products/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/pc/products/1049413>

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



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## Bridge

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

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

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## Bridge

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

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