

ELR H3-IES-SC- 24DC/500AC-2 - Hybrid motor starter



2900567

<https://www.phoenixcontact.com/au/products/2900567>

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Hybrid motor starter for starting 3~ AC motors up to 500 V AC and 2.4 A output current, with 24 V DC control voltage, adjustable overload shutdown and emergency stop function to SIL 3/PL e and, screw connection.

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	2900567
Packing unit	1 pc
Minimum order quantity	1 pc
Sales key	DK7411
Product key	DK7411
Catalog page	Page 34 (C-5-2019)
GTIN	4046356526135
Weight per piece (including packing)	295.4 g
Weight per piece (excluding packing)	203.9 g
Customs tariff number	85371098
Country of origin	DE

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	Direct starter
Switching frequency	≤ 2 Hz (Load-dependent)
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
	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
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)
Switching level	< 5 V DC (For EMERGENCY STOP)

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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 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 ² ... 2.5 mm ²
Conductor cross section flexible	0.2 mm ² ... 2.5 mm ²
Conductor cross section AWG	24 ... 14
Tightening torque	0.5 Nm ... 0.6 Nm
	5 lb _F -in. ... 7 lb _F -in.

Load circuit

Connection method	Screw connection
Stripping length	8 mm
Screw thread	M3
Conductor cross section rigid	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
Tightening torque	0.5 Nm ... 0.6 Nm
	5 lb _F -in. ... 7 lb _F -in.

Signaling

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Status display	LED (yellow)
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

UKCA

Certificate	UKCA-compliant
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ATEX

Identification	Ex II (2) G [Ex e] [Ex d] [Ex px] Ex 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	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

Standards and regulations

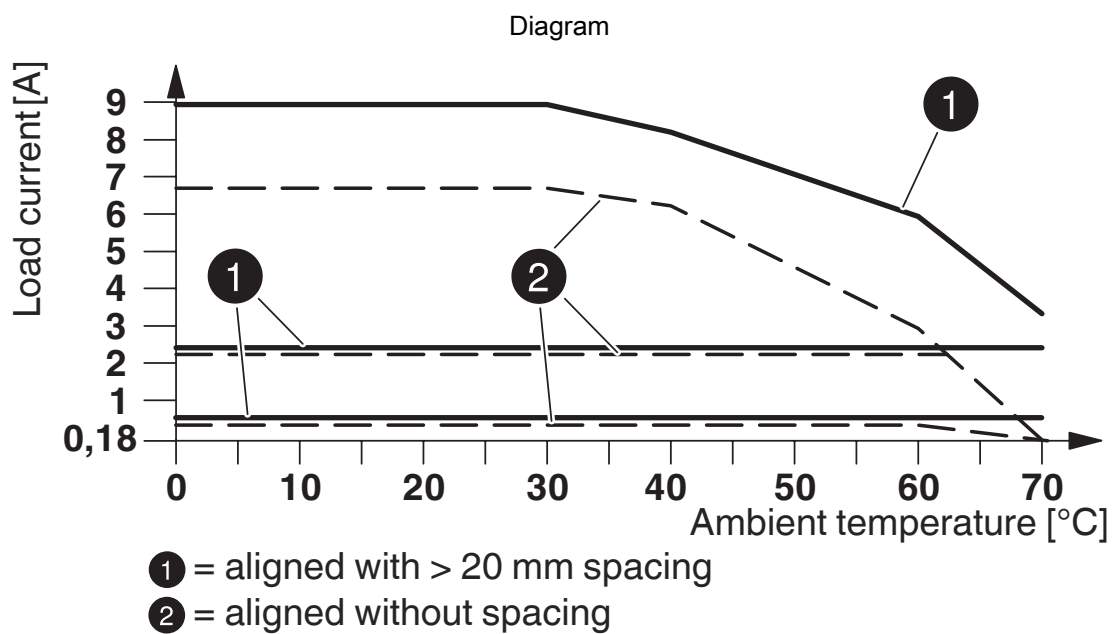
Standards/regulations

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

Mounting

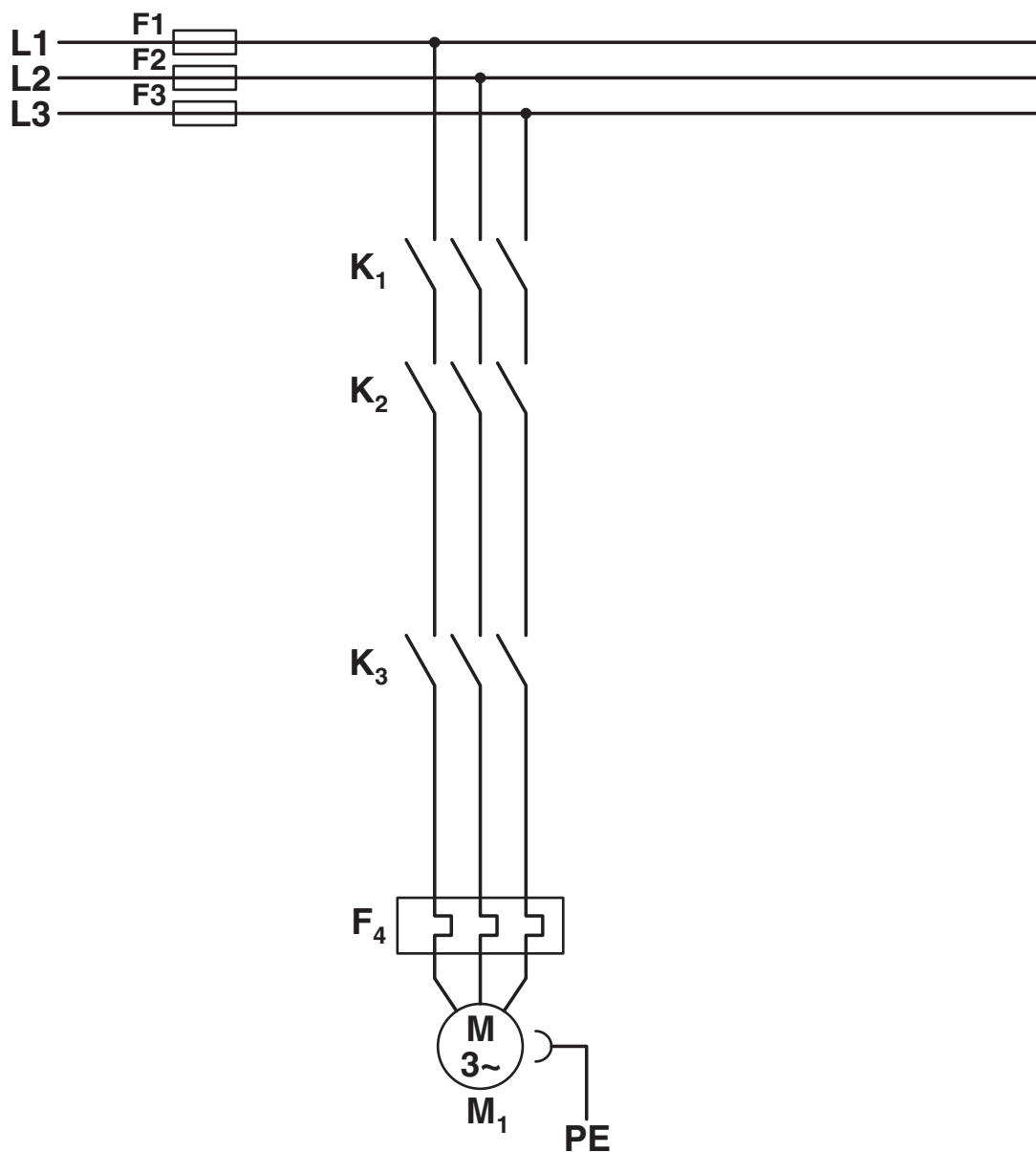
Mounting type	DIN rail mounting
Assembly note	alignable, for spacing see derating
Mounting position	vertical (horizontal DIN rail, motor output below)

Drawings



Derating diagram

Circuit diagram



Conventional structure

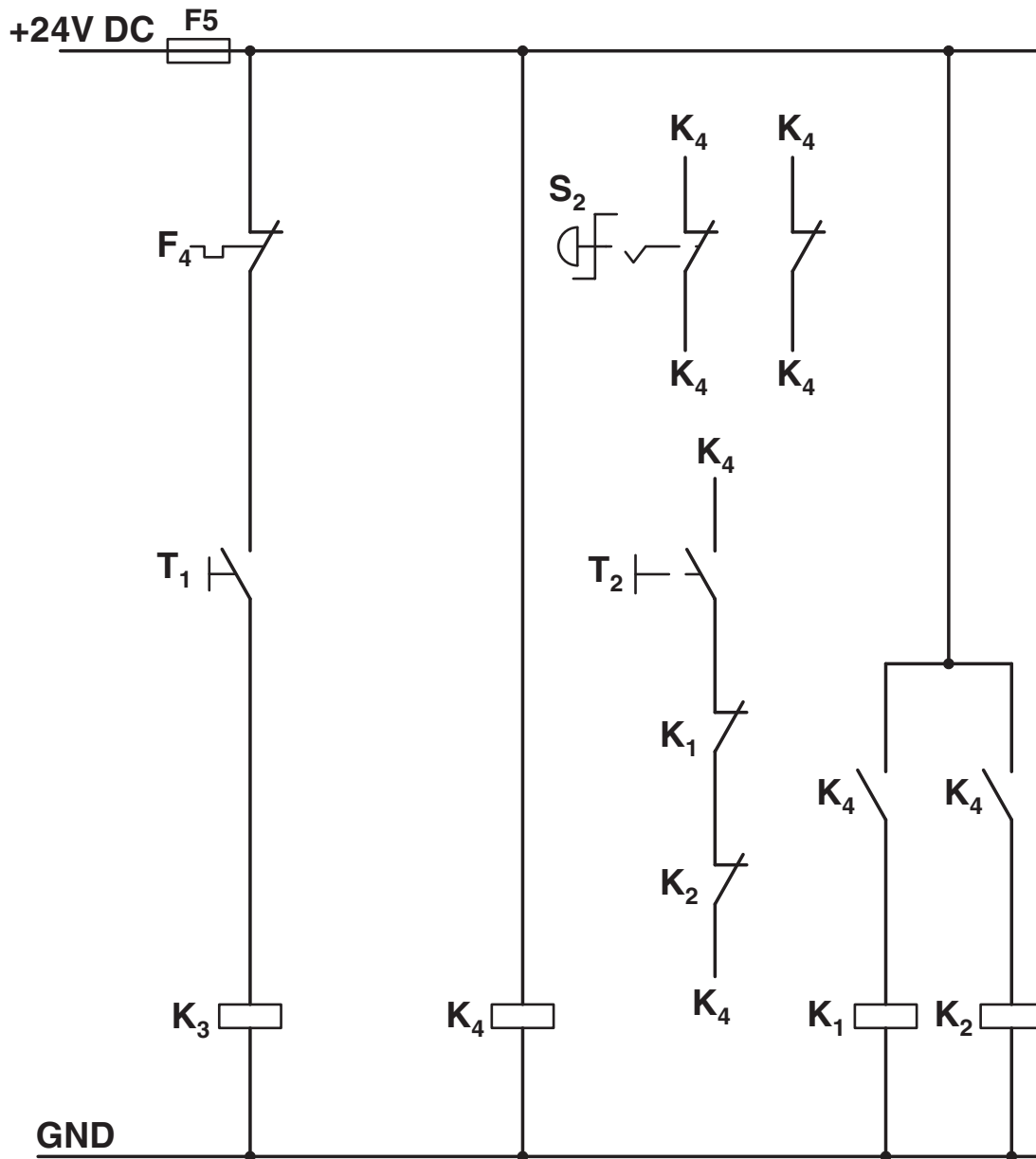
Main current path for contactor according to category 3

K1 + K2 = Emergency stop contactor

K3 = Right contactor

F4 = Motor protection relay

Circuit diagram



Conventional structure

Control current path for contactor according to category 3

K1 + K2 = Emergency stop contactor

K3 = Right contactor

K4 = PSR SCP-24DC.../safety relay

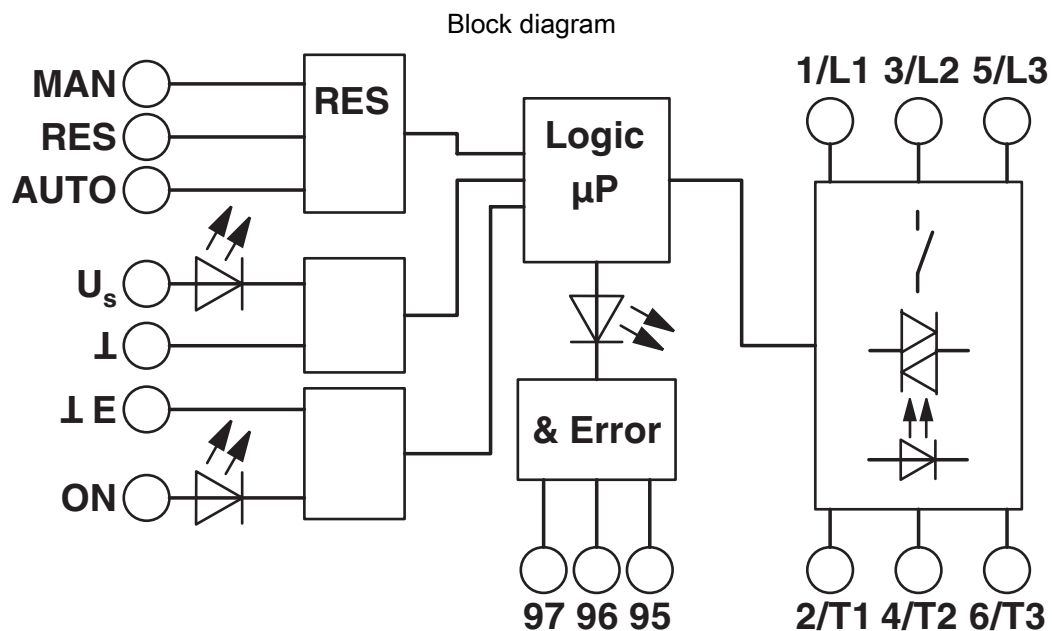
T1 = Right, T3 = Reset

S2 = Emergency stop

F4 = Motor protection relay

The diagram illustrates a three-phase motor control circuit. It features three main power lines (L1, L2, L3) and a +24V DC supply. The motor (M) is connected to the three-phase supply through a contactor (K1) and thermal relays (T1, T2, T3). The forward running contactor (K2) is controlled by a forward stop button (S1) and a forward start button (S2), with an interlocking mechanism (K3) to prevent simultaneous forward and reverse operation. The reverse running contactor (K4) is controlled by a reverse stop button (S1) and a reverse start button (S2), also with an interlocking mechanism (K3). An emergency stop button (S3) is connected to a common stop circuit (K5) that de-energizes both the forward and reverse contactors. The motor is protected by a thermal relay (T1) and a fuse (F1). The +24V DC supply is connected to the control circuit through a fuse (F2) and a stop button (S3).

K1 = '3 in 1' hybrid motor starter
K4 = PSR SCP-24DC.../safety relay
T1 = Right, T3 = Reset
S2 = Emergency stop



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Approvals

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	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: E228652
	UL Listed Approval ID: E228652
	CCC Approval ID: 2024010304672817
	ATEX Approval ID: PTB 07 ATEX 3145

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Classifications

ECLASS

ECLASS-13.0	27370905
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ETIM

ETIM 9.0	EC001037
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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	9768ffaa-10dd-46e0-b4c3-6fe95499cb7a