

# ELR H3-IES-PT- 24DC/500AC-9-P - Hybrid motor starter



2909555

<https://www.phoenixcontact.com/us/products/2909555>

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Hybrid motor starter as an alternative to a conventional protective circuit. Starts 3~ AC motors up to 9 A, provides motor protection, ATEX, and emergency stop up to SIL 3. Group shut-down, supply, and relay extension possible via DIN rail connector.

## Product description

The modular 3-phase hybrid motor starter with direct start function and current monitoring provides the following functions: - Forward running - Motor overload protection (EU examination certificate in accordance with ATEX Directive 2014/34/EU) - Emergency stop to performance level PLe (TÜV certified) Additional advantages are provided by using the DIN rail connector adapter (Item No. 2203861): - Emergency stop of the enable signal is also possible via the DIN rail connector, e.g. via a safety relay (PSR DC38...) - Power can also be supplied via the DIN rail connector by a system power supply (e. g., QUINT4-SYS...) or via the PCB connector IMC 1,5/ 5-ST-3,81, Item No. 1857919 - Optional relay module (e. g., EM-2RSC/21AU-R/L-P, Item No. 2908701) provides additional status information

## Commercial data

Item number	2909555
Packing unit	1 pc
Minimum order quantity	1 pc
Sales key	C470
Product key	DK7473
GTIN	4055626406053
Weight per piece (including packing)	306 g
Weight per piece (excluding packing)	306 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	Direct starter
Switching frequency	≤ 2 Hz (Load-dependent)
Switching frequency	≤ 2 Hz (Load-dependent)
Maximum power dissipation	7 W
Minimum power dissipation	0.88 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 $I_S$	60 mA
Protective circuit	Surge protection Reverse polarity protection; Parallel polarity protection diode

### Insulation characteristics

Rated insulation voltage	550 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)
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	> 60 A
Response time	< 0.5 s

## Input data

### Control

Input name	Control input and enable input
Note	The enable input is compatible with signals with blanking (semiconductor output signals with test pulse with max. 3 ms duration), unblanking pulses of max. 4 ms are tolerated without adversely affecting the safety function.
Rated actuating voltage $U_C$	24 V DC

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Triggering voltage range	19.2 V DC ... 30 V DC
Rated actuating current $I_C$	7 mA
Switching threshold	9.6 V ("0" signal)
	19.2 V ("1" signal)
Switching level	< 5 V DC (For EMERGENCY STOP)
Typical turn-off time	< 30 ms
Protective circuit	Reverse polarity protection

## Output data

### AC output

Note	1200 V semiconductor
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)
	7 A (AC-53a)
Mains frequency	50/60 Hz
Load current range	1.5 A ... 9 A
Trigger characteristic in acc. with IEC 60947-4-2	Class 10 ( $\leq 3$ A)
	Class 10A ( $> 3$ A)
Cooling time	20 min (for auto reset)
Leakage current	0 mA
Protective circuit	Surge protection; Varistor

### 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	2 A (24 V (DC13))

## Connection data

### Control circuits

Connection method	Push-in connection
Stripping length	10 mm
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

### Load circuit

Connection method	Push-in connection
Stripping length	10 mm
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

## Signaling

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Status display	LED (yellow)
Operating voltage display	Green LED
Error indication	Red LED

## Dimensions

Width	22.5 mm
Height	107.5 mm
Depth	114 mm

## Material specifications

Flammability rating according to UL 94 (Housing)	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	⊕ I I (2) G [Ex db] [Ex eb] [Ex pxb]
	⊕ II (2) D [Ex tb] [Ex pb]
Certificate	PTB 18 ATEX 3004

### UL approval

Certificate	NLDX.E228652
	NRNT.E172140

### 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

### UL data

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SCCR	100 kA (480 V AC (fuse: 30 A class CC/30 A class J (high fault)))
	5 kA (480 V AC (fuse: 20 A RK5 (standard fault)))
FLA	7.6 A (480 V AC)
Group installation	20 A (class RK5, SCCR 5kA (480 V AC), #24 - 14 AWG max. solid and stranded)
	30 A (class CC or J, SCCR 100kA (480 V AC), #24 - 14 AWG max. solid and stranded)
Category code	NLDX / NRNT
Horsepower ratings	2 hp (208 V AC)
	2 hp (230 V AC)
	2 hp (240 V AC)
	5 hp (480 V AC)
Ambient temperature (operation)	-25 °C ... 55 °C

## Standards and regulations

### Standards/regulations

Standards/regulations	EN 60947-1
	EN 60947-4-2
	EN 50495
	EN ISO 13849
	IEC 62061
	IEC 61508

## Mounting

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

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## Drawings

Block diagram



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## Approvals

To download certificates, visit the product detail page: <https://www.phoenixcontact.com/us/products/2909555>



### IECEE CB Scheme

Approval ID: CB-DE1-60807-A1



### EAC

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



### UL Listed

Approval ID: FILE E 172140



### cUL Listed

Approval ID: FILE E 172140



### cUL Listed

Approval ID: E228652



### UL Listed

Approval ID: E228652



### VDE Zeichengenehmigung

Approval ID: 40054426



### CCC

Approval ID: 2024010304672814

### DNV

Approval ID: TAA00002HK



### ATEX

Approval ID: PTB18ATEX3004-A0\_en

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## Classifications

### ECLASS

ECLASS-13.0	27370905
ECLASS-15.0	27370905
ECLASS-15.0 ASSET	27250101

### ETIM

ETIM 10.0	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)
	2,2',6,6'-tetrabromo-4,4'-isopropylidenediphenol(CAS: 79-94-7)
SCIP	5bd21a5a-a754-4824-b8ea-9b9c665c4791

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