

## Hybrid motor starter - ELR H3-IES-SC-230AC/500AC-2 - 2900568

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Hybrid motor starter for starting 3~ AC motors up to 550 V AC, with 230 V AC input, 2.4 A output current, emergency stop function, and adjustable overload shutdown.

Illustration shows the 24 V design

### Product Features

- 22.5 mm wide
- Safety level according to IEC 61508-1: SIL 3, ISO 13849: PL e
- Long service life
- Reduction in wiring
- Space saving
- Bimetal function can be set up to 9 A
- 3-phase loop bridges



### Key Commercial Data

Packing unit	1 pc
Weight per Piece (excluding packing)	260.0 g
Custom tariff number	85371099
Country of origin	Germany

### Technical data

#### Dimensions

Width	22.5 mm
Height	99 mm
Depth	114.5 mm

#### Ambient conditions

Ambient temperature (operation)	-25 °C ... 70 °C (observe derating)
Ambient temperature (storage/transport)	-40 °C ... 80 °C

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## Technical data

### Ambient conditions

Degree of protection	IP20
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### Device supply

Rated control circuit supply voltage $U_s$	230 V AC (50/60 Hz)
Control supply voltage range	85 V AC ... 253 V AC
Rated control supply current $I_s$	4 mA
Protective circuit	Surge protection

### Input data

Input name	Control input right/left
Rated actuating voltage $U_c$	230 V AC
Voltage range	85 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 AC (For EMERGENCY STOP)
Typical turn-off time	< 70 ms

### Output data load output

Output name	AC output
Rated operating voltage $U_e$	500 V AC
Operating voltage range	42 V AC ... 550 V AC
Mains frequency	50 Hz 60 Hz
Load current range	180 mA ... 2.4 A (see to derating)
Trigger characteristic in acc. with IEC 60947	Class 10A
Cooling time	20 min. (for auto reset)
Rated operating current at AC-51	2.4 A
Rated operating current at AC-53a	2.4 A
Leakage current	0 mA
Protective circuit	Surge protection

### Output data reply output

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

## General

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## Technical data

### General

Switching frequency	≤ 2 Hz (Load-dependent)
Mounting position	vertical (horizontal DIN rail, motor output below)
Assembly instructions	alignable, for spacing see derating
Operating mode	100% operating factor
Maximum power dissipation	4.1 W
Minimum power dissipation	0.88 W
Operating voltage display	Green LED
Status display	Yellow LED
Indication	Red LED

### Connection data, input side

Connection name	Control circuits
Connection method	Screw connection
Stripping length	8 mm
Screw thread	M3
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
Torque	0.5 Nm ... 0.6 Nm

### Connection data, output side

Connection name	Load circuit
Connection method	Screw connection
Stripping length	8 mm
Screw thread	M3
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
Torque	0.5 Nm ... 0.6 Nm

### Standards/regulations

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

### Insulation characteristics

Rated insulation voltage	500 V
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## Technical data

### Insulation characteristics

Rated surge voltage	4 kV
Overvoltage category	III
Degree of pollution	2
Designation	Insulation characteristics between the control input and control supply voltage, and auxiliary circuit to the main circuit
Insulation	Safe isolation (IEC 60947-1) at operating voltage $\leq 300$ V AC
	Safe isolation (EN 50178) at operating voltage $\leq 300$ V AC
	Basic isolation (IEC 60947-1) at operating voltage 300 ... 500 V AC
	Safe isolation (EN 50178) at operating voltage 300 ... 500 V AC
Designation	Isolation characteristics between the control input and control supply voltage to auxiliary circuit
Insulation	Safe isolation (IEC 60947-1) in the auxiliary circuit $\leq 300$ V AC
	Safe isolation (EN 50178) in the auxiliary circuit $\leq 300$ V AC

### Approvals/conformities

Safety Integrity Level according to IEC 61508	SIL 3 (safe shutdown)
	SIL 2 (motor protection)
Category acc. to EN ISO 13849	3 (Safe shutdown)
Performance level according to ISO 13849	e (Safe shutdown)
ATEX	# II (2) G [Ex e] [Ex d] [Ex px]
	# II (2) D [Ex t] [Ex p]
EU type-examination certificate	PTB 07 ATEX 3145

### UL data

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	2.4 A (480 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

Designation	Standards/regulations
Standards/regulations	IEC 60947-1
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	# II (2) D [Ex t] [Ex p]

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## Classifications

### eCl@ss

eCl@ss 4.0	27371102
eCl@ss 4.1	27371102
eCl@ss 5.0	27371601
eCl@ss 5.1	27371601
eCl@ss 6.0	27371601
eCl@ss 7.0	27371601
eCl@ss 8.0	27370905
eCl@ss 9.0	27370905

### ETIM

ETIM 2.0	EC000066
ETIM 3.0	EC000066
ETIM 4.0	EC000066
ETIM 5.0	EC002055

### UNSPSC

UNSPSC 6.01	30211915
UNSPSC 7.0901	39121514
UNSPSC 11	39121514
UNSPSC 12.01	39121514
UNSPSC 13.2	39121514

## Approvals

### Approvals

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#### Approvals

UL Listed / cUL Listed / IECCE CB Scheme / GL / GL-SW / UL Listed / cUL Listed / EAC / cULus Listed / GL

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#### Ex Approvals

ATEX

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Approvals submitted

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### Approval details

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## Approvals

UL Listed 

cUL Listed 

IECEE CB Scheme 


GL

GL-SW

UL Listed 

cUL Listed 

EAC

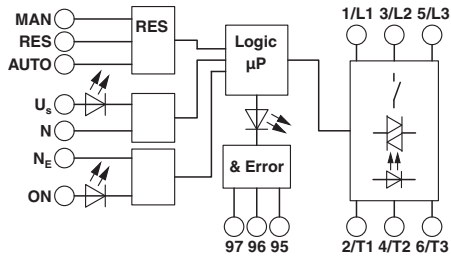
cULus Listed 

GL

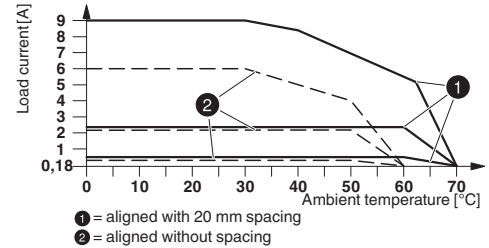
## Drawings

# Hybrid motor starter - ELR H3-IES-SC-230AC/500AC-2 - 2900568

Block diagram

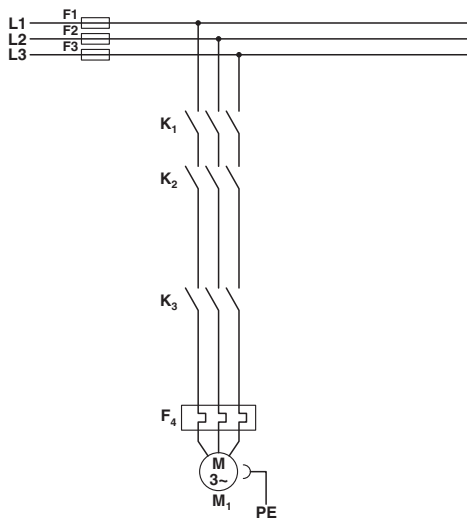


Diagram



Derating diagram

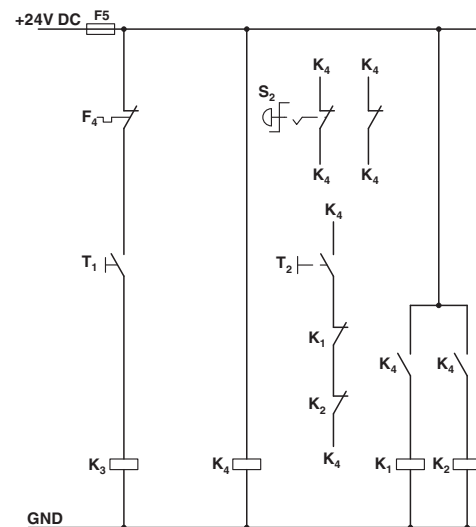
Circuit diagram



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

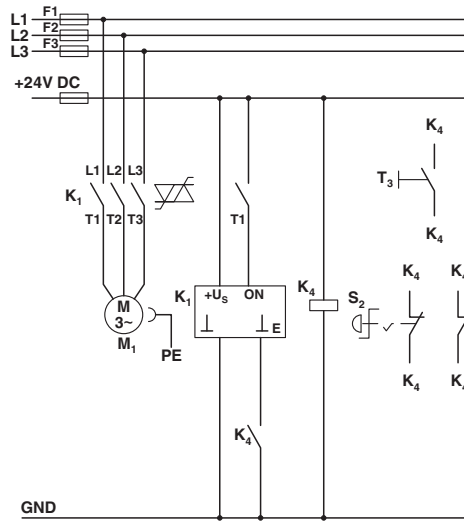


Conventional structure  
Control current path for contactor according to category 3

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

# Hybrid motor starter - ELR H3-IES-SC-230AC/500AC-2 - 2900568

Circuit diagram



## Structure with CONTACTRON

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

K1 = '3 in 1' hybrid motor starter

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

T1 = Right, T3 = Reset

S2 = Emergency stop