

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



2909568

<https://www.phoenixcontact.com/us/products/2909568>

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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 and emergency stop up to SIL 3/PL e. 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 - 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                          | 2909568       |
| Packing unit                         | 1 pc          |
| Minimum order quantity               | 1 pc          |
| Sales key                            | C470          |
| Product key                          | DK7473        |
| GTIN                                 | 4055626426211 |
| Weight per piece (including packing) | 306 g         |
| Weight per piece (excluding packing) | 306 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) |
| 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<br>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

|                                                   |                            |
|---------------------------------------------------|----------------------------|
| 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

|                |              |
|----------------|--------------|
| Status display | LED (yellow) |
|----------------|--------------|

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|                           |           |
|---------------------------|-----------|
| 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) |
|--------------------------------------------------|--------------|

## 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

### 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

|                    |                                                                             |
|--------------------|-----------------------------------------------------------------------------|
| 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)                   |

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|                                 |                          |
|---------------------------------|--------------------------|
|                                 | 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

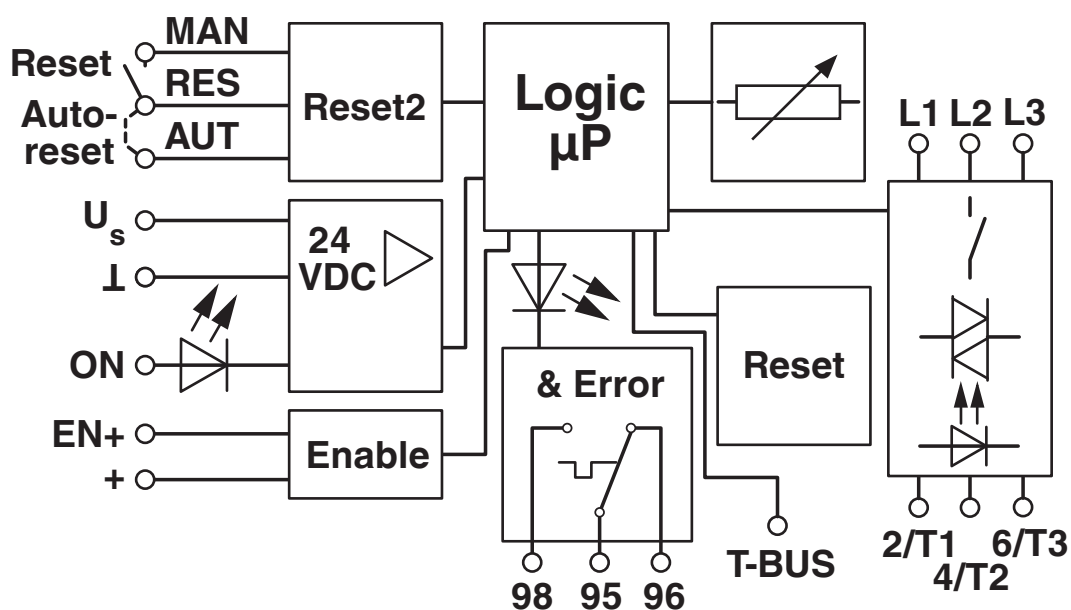
|                       |              |
|-----------------------|--------------|
| Standards/regulations | EN 60947-1   |
|                       | EN 60947-4-2 |
|                       | EN ISO 13849 |
|                       | IEC 62061    |
|                       | IEC 61508    |

## Mounting

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

## Drawings

Block diagram



## Approvals

To download certificates, visit the product detail page: <https://www.phoenixcontact.com/us/products/2909568>



### 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



### Functional Safety

Approval ID: 968/FSP 1746.01/19



### CCC

Approval ID: 2024010304672814

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## Classifications

### ECLASS

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

### ETIM

|          |          |
|----------|----------|
| ETIM 9.0 | EC001037 |
|----------|----------|

### UNSPSC

|             |          |
|-------------|----------|
| UNSPSC 21.0 | 25173900 |
|-------------|----------|



## 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                                | e8ec8d11-68ba-49f9-bd15-dec3624e1585 |