# ELR H5-IES-SC/500AC-9-IFS - Hybrid motor starter

2905153

https://www.phoenixcontact.com/us/products/2905153

**PHŒNIX CONTACT**

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Networkable hybrid motor starter for reversing 3~ AC motors up to 500 V AC and 9 A output current, with adjustable overload shutdown, emergency stop function up to SIL 3/PL e, and screw connection, DIN rail connector provided.

## Your advantages

- 22.5 mm wide
- Safety level in accordance with IEC 61508-1: SIL 3, ISO 13849: PL e
- Reduction in wiring
- Space saving
- Long service life
- 3-phase loop bridges
- Adjustable current for bimetal function
- Low-wear switching

## Commercial data

| | |
|---|---|
| Item number | 2905153 |
| Packing unit | 1 pc |
| Minimum order quantity | 1 pc |
| Sales key | C478 |
| Product key | CK7434 |
| Catalog page | Page 24 (C-5-2019) |
| GTIN | 4046356920346 |
| Weight per piece (including packing) | 317.3 g |
| Weight per piece (excluding packing) | 282.7 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 |

#### Data management status

| | |
|---|---|
| Article revision | 05 |

### Electrical properties

| | |
|---|---|
| Number of phases | 3 |
| Motor starter type | Reversing starter |
| Switching frequency | ≤ 2 Hz (Load-dependent) |
| Maximum power dissipation for nominal condition | 12 W |
| 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 | 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 |
| 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 (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; Varistor |

## Connection data

### Control circuits

| Connection method | Screw connection |
|---|---|
| Stripping length | 8 mm |
| Screw thread | M3 |
| Conductor cross section rigid | 0.2 mm² ... 2.5 mm² |
| Conductor cross section flexible | 0.2 mm² ... 2.5 mm² |
| 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 mm² ... 2.5 mm² |
| Conductor cross section flexible | 0.2 mm² ... 2.5 mm² |
| Conductor cross section AWG | 24 ... 14 |

| Tightening torque | 0.5 Nm ... 0.6 Nm |
| | 5 lb$_F$-in. ... 7 lb$_F$-in. |

## Signaling

| 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) |

## Environmental and real-life conditions

### Ambient conditions

| Degree of protection | IP20 |
| Ambient temperature (operation) | -5 °C ... 60 °C (observe derating) |
| Ambient temperature (storage/transport) | -40 °C ... 80 °C |
| Altitude | ≤ 2000 m |

## Approvals

### UKCA

| Certificate | UKCA-compliant |

### ATEX

| Identification | ⟨Ex⟩ II (2) G [Ex eb] [Ex db] [Ex pxb] |
| | ⟨Ex⟩ II (2) D [Ex tb] [Ex pb] |
| Certificate | PTB 15 ATEX 3000 |

### 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 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) |

## Standards and regulations

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

## Mounting

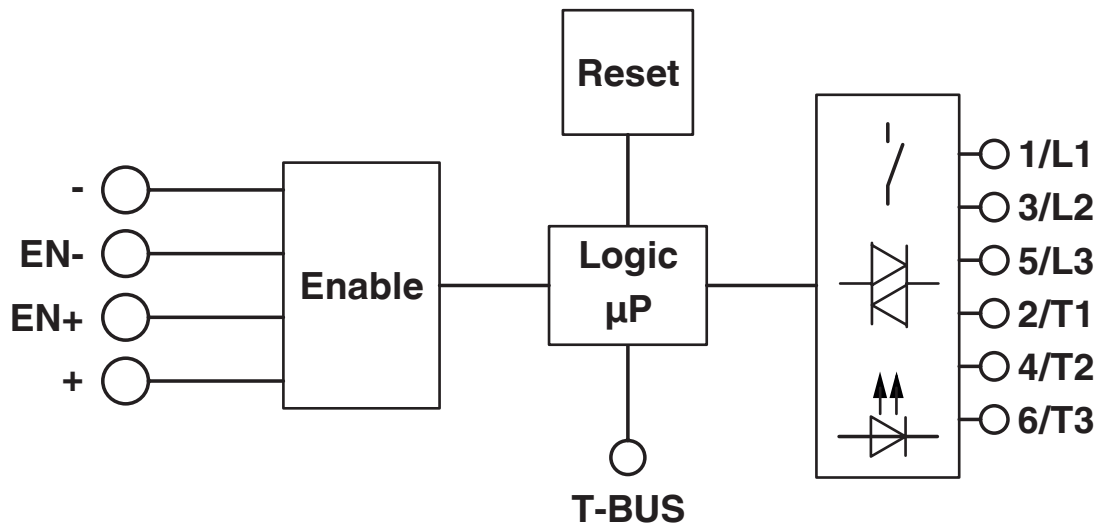| Mounting type | DIN rail mounting |
|---|---|
| Assembly note | alignable, for spacing see derating |
| Mounting position | vertical (horizontal DIN rail, motor output below) |

## Drawings

Diagram



= aligned with > 20 mm spacing

= aligned without spacing
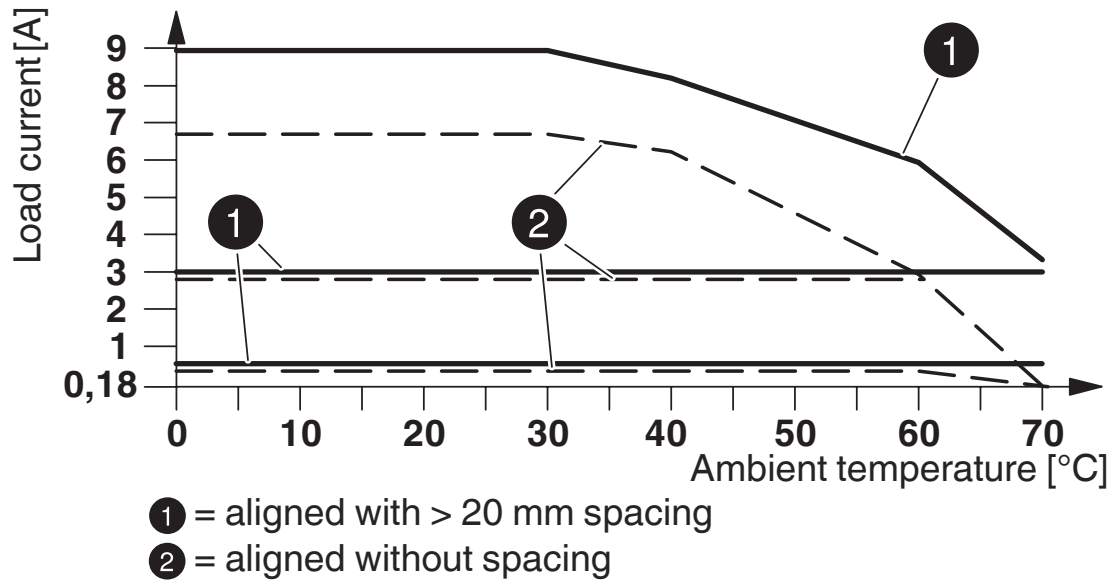
Derating diagram

Block diagram

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## Approvals

💡 To download certificates, visit the product detail page: https://www.phoenixcontact.com/us/products/2905153

**IECEE CB Scheme**
Approval ID: DE1-60807

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

**UL Listed**
Approval ID: FILE E 172140

**CCC**
Approval ID: 2016010304900298

**cUL Listed**
Approval ID: FILE E 172140

**cUL Listed**
Approval ID: E228652

**UL Listed**
Approval ID: E228652

**ATEX**
Approval ID: PTB 15 ATEX 3000

## Classifications

### ECLASS

| | |
|---|---|
| ECLASS-11.0 | 27370905 |
| ECLASS-13.0 | 27370905 |
| ECLASS-12.0 | 27370905 |

### 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 | c1971f34-bbd6-4f1a-80c2-6da837bd16d9 |

# ELR H5-IES-SC/500AC-9-IFS - Hybrid motor starter

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## Mandatory accessories

### EM-PB-GATEWAY-IFS - Data interface

2297620

https://www.phoenixcontact.com/us/products/2297620

Gateway for the connection of up to 32 INTERFACE system devices to a higher-level controller via PROFIBUS DP. The INTERFACE system devices are connected to the Gateway via DIN rail connectors, the DIN rail connectors are provided.

### EM-CAN-GATEWAY-IFS - Data interface

2901504

https://www.phoenixcontact.com/us/products/2901504

Gateway for the connection of up to 32 INTERFACE system devices to a higher-level controller via CANopen®. The INTERFACE system devices are connected to the Gateway via DIN rail connectors, the DIN rail connectors are provided.

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## EM-MODBUS-GATEWAY-IFS - Data interface

2901528

https://www.phoenixcontact.com/us/products/2901528

Gateway for the connection of up to 32 INTERFACE system devices via Modbus/TCP to a higher-level controller. The INTERFACE system devices are connected to the Gateway via DIN rail connectors, the DIN rail connectors are provided.

## EM-PNET-GATEWAY-IFS - Data interface

2904472

https://www.phoenixcontact.com/us/products/2904472

Gateway for the connection of up to 32 INTERFACE system devices via PROFINET to a higher-level controller. The INTERFACE system devices are connected to the Gateway via DIN rail connectors, the DIN rail connectors are provided.

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## EM-ETH-GATEWAY-IFS - Data interface

2901988

https://www.phoenixcontact.com/us/products/2901988

Gateway for the connection of up to 32 INTERFACE system devices to a higher-level controller via EtherNet/IP™. The INTERFACE system devices are connected to the Gateway via DIN rail connectors, the DIN rail connectors are provided.

## EM-PSAFE-GATEWAY-IFS - Data interface

1188207

https://www.phoenixcontact.com/us/products/1188207

Gateway for connecting up to 15 INTERFACE system devices to a higher-level secure controller via PROFIsafe. The system devices are connected to the gateway via DIN rail connectors. The DIN rail connectors are provided.

# Accessories

## BRIDGE- 2 - Bridge

2900746

https://www.phoenixcontact.com/us/products/2900746

3-phase loop bridge for CONTACTRON modules, with screw connection and 22. 5 mm housing width, connecting cable: 0.3 m, with ferrules.

## BRIDGE- 3 - Bridge

2900747

https://www.phoenixcontact.com/us/products/2900747

3-phase loop bridge for 3 CONTACTRON modules, with screw connection and 22.5 mm housing width, connecting cable: 0.3 m, with ferrules.

## BRIDGE- 4 - Bridge

2900748

https://www.phoenixcontact.com/us/products/2900748

3-phase loop bridge for 4 CONTACTRON modules, with screw connection and 22.5 mm housing width, connecting cable: 0.3 m, with ferrules.



## BRIDGE- 5 - Bridge

2900749

https://www.phoenixcontact.com/us/products/2900749

3-phase loop bridge for 5 CONTACTRON modules, with screw connection and 22.5 mm housing width, connecting cable: 0.3 m, with ferrules.

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## BRIDGE- 6 - Bridge

2900750

https://www.phoenixcontact.com/us/products/2900750

3-phase loop bridge for 6 CONTACTRON modules, with screw connection and 22.5 mm housing width, connecting cable: 0.3 m, with ferrules.



## BRIDGE- 7 - Bridge

2900751

https://www.phoenixcontact.com/us/products/2900751

3-phase loop bridge for 7 CONTACTRON modules, with screw connection and 22.5 mm housing width, connecting cable: 0.3 m, with ferrules.

## BRIDGE- 8 - Bridge

2900752

https://www.phoenixcontact.com/us/products/2900752

3-phase loop bridge for 8 CONTACTRON modules, with screw connection and 22.5 mm housing width, connecting cable: 0.3 m, with ferrules.

## BRIDGE- 9 - Bridge

2900753

https://www.phoenixcontact.com/us/products/2900753

3-phase loop bridge for 9 CONTACTRON modules, with screw connection and 22.5 mm housing width, connecting cable: 0.3 m, with ferrules.

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## BRIDGE-10 - Bridge

2900754

https://www.phoenixcontact.com/us/products/2900754

3-phase loop bridge for 10 CONTACTRON modules, with screw connection and 22.5 mm housing width, connecting cable: 0.3 m, with ferrules.

## BRIDGE- 2-1M - Bridge

2901542

https://www.phoenixcontact.com/us/products/2901542

3-phase loop bridge for 2 CONTACTRON modules, with screw connection and 22.5 mm housing width, connecting cable: 1 m

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## BRIDGE- 3-1M - Bridge

2901655

https://www.phoenixcontact.com/us/products/2901655

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

## BRIDGE- 4-1M - Bridge

2901658

https://www.phoenixcontact.com/us/products/2901658

3-phase loop bridge for 4 CONTACTRON modules, with screw connection and 22.5 mm housing width, connecting cable: 1 m

# ELR H5-IES-SC/500AC-9-IFS - Hybrid motor starter

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## BRIDGE- 5-1M - Bridge

2901544

https://www.phoenixcontact.com/us/products/2901544

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

## BRIDGE- 6-1M - Bridge

2901649

https://www.phoenixcontact.com/us/products/2901649

3-phase loop bridge for 6 CONTACTRON modules, with screw connection and 22.5 mm housing width, connecting cable: 1 m

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## BRIDGE- 2-3M - Bridge

2901543

https://www.phoenixcontact.com/us/products/2901543

3-phase loop bridge for 2 CONTACTRON modules, with screw connection and 22.5 mm housing width, connecting cable: 3 m

## BRIDGE- 3-3M - Bridge

2901656

https://www.phoenixcontact.com/us/products/2901656

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

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## BRIDGE- 4-3M - Bridge

2901659

https://www.phoenixcontact.com/us/products/2901659

3-phase loop bridge for 4 CONTACTRON modules, with screw connection and 22.5 mm housing width, connecting cable: 3 m

## BRIDGE- 5-3M - Bridge

2901545

https://www.phoenixcontact.com/us/products/2901545

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

# ELR H5-IES-SC/500AC-9-IFS - Hybrid motor starter

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## BRIDGE- 6-3M - Bridge

2901697

https://www.phoenixcontact.com/us/products/2901697

3-phase loop bridge for 6 CONTACTRON modules, with screw connection and 22.5 mm housing width, connecting cable: 3 m

## BRIDGE- 7-3M - Bridge

2901698

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

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## BRIDGE- 8-3M - Bridge

2901700

https://www.phoenixcontact.com/us/products/2901700

3-phase loop bridge for 8 CONTACTRON modules, with screw connection and 22.5 mm housing width, connecting cable: 3 m

## BRIDGE- 9-3M - Bridge

2901701

https://www.phoenixcontact.com/us/products/2901701

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

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## BRIDGE-10-3M - Bridge

2901702

https://www.phoenixcontact.com/us/products/2901702

3-phase loop bridge for 10 CONTACTRON modules, with screw connection and 22.5 mm housing width, connecting cable: 3 m

## BRIDGE- 2- 2M/0,3M - Bridge

2909897

https://www.phoenixcontact.com/us/products/2909897

3-phase loop bridge for 2 CONTACTRON modules, with screw connection and 22.5 mm housing width, cable length between the modules: 0.3 m, connecting cable: 2 m

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## BRIDGE- 3- 2M/0,3M - Bridge

2909898

https://www.phoenixcontact.com/us/products/2909898

3-phase loop bridge for 3 CONTACTRON modules, with screw connection and 22.5 mm housing width, cable length between the modules: 0.3 m, connecting cable: 2 m

## BRIDGE- 4- 2M/0,3M - Bridge

2909899

https://www.phoenixcontact.com/us/products/2909899

3-phase loop bridge for 4 CONTACTRON modules, with screw connection and 22.5 mm housing width, cable length between the modules: 0.3 m, connecting cable: 2 m

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## US-EMLP (15X5) - Plastic label

0828790

https://www.phoenixcontact.com/us/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

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

0819301

https://www.phoenixcontact.com/us/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

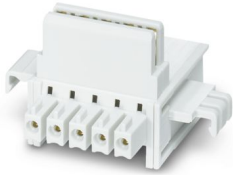# ELR H5-IES-SC/500AC-9-IFS - Hybrid motor starter

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## ME 22,5 TBUS 1,5/ 5-ST-3,81 GY - DIN rail bus connectors

2201937

https://www.phoenixcontact.com/us/products/2201937

DIN rail connector, color: gray, nominal current: 8 A (parallel contacts), rated voltage (III/2): 125 V, number of positions: 5, product range: TBUS5-22,5.., pitch: 3.81 mm, mounting: DIN rail mounting, locking: without, mounting: without, type of packaging: packed in cardboard, Item with gold-plated contacts, bus connectors for connecting with electronics housings, 5 parallel contacts

## EM-D-8/4-24DC-IFS - Extension module

2904473

https://www.phoenixcontact.com/us/products/2904473

For more complex applications with Interface system devices (IFS), the extension module offers digital inputs and outputs for processing additional signals in the field. Easy connection to IFS gateway via the DIN rail connector as the slave.

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## QUINT4-SYS-PS/1AC/24DC/2.5/SC - Power supply unit

2904614

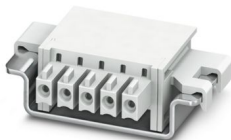https://www.phoenixcontact.com/us/products/2904614

Primary-switched power supply, QUINT POWER, screw connection, DIN rail mounting, supply of devices possible via the TBUS DIN rail connector, protective coating, input: single-phase, output: 24 V DC/2.5 A

## ME 22,5 TBUS ADAPTER KMGY - DIN rail bus connectors

2201756

https://www.phoenixcontact.com/us/products/2201756

DIN rail bus adapter for ME and ME-MAX, design width: 22.5 mm, 5 parallel positions, color: light gray (similar to RAL 7035)